



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

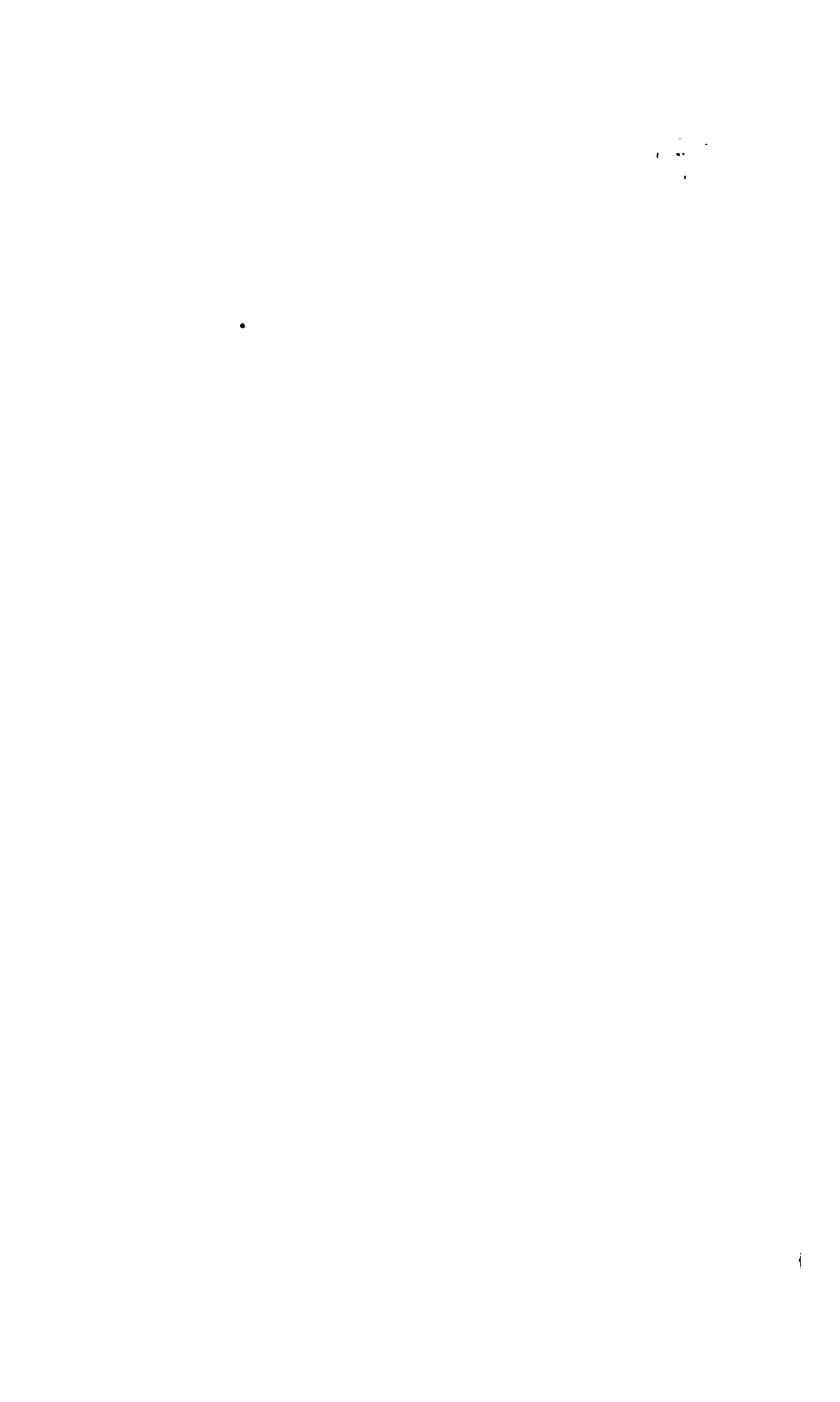
A

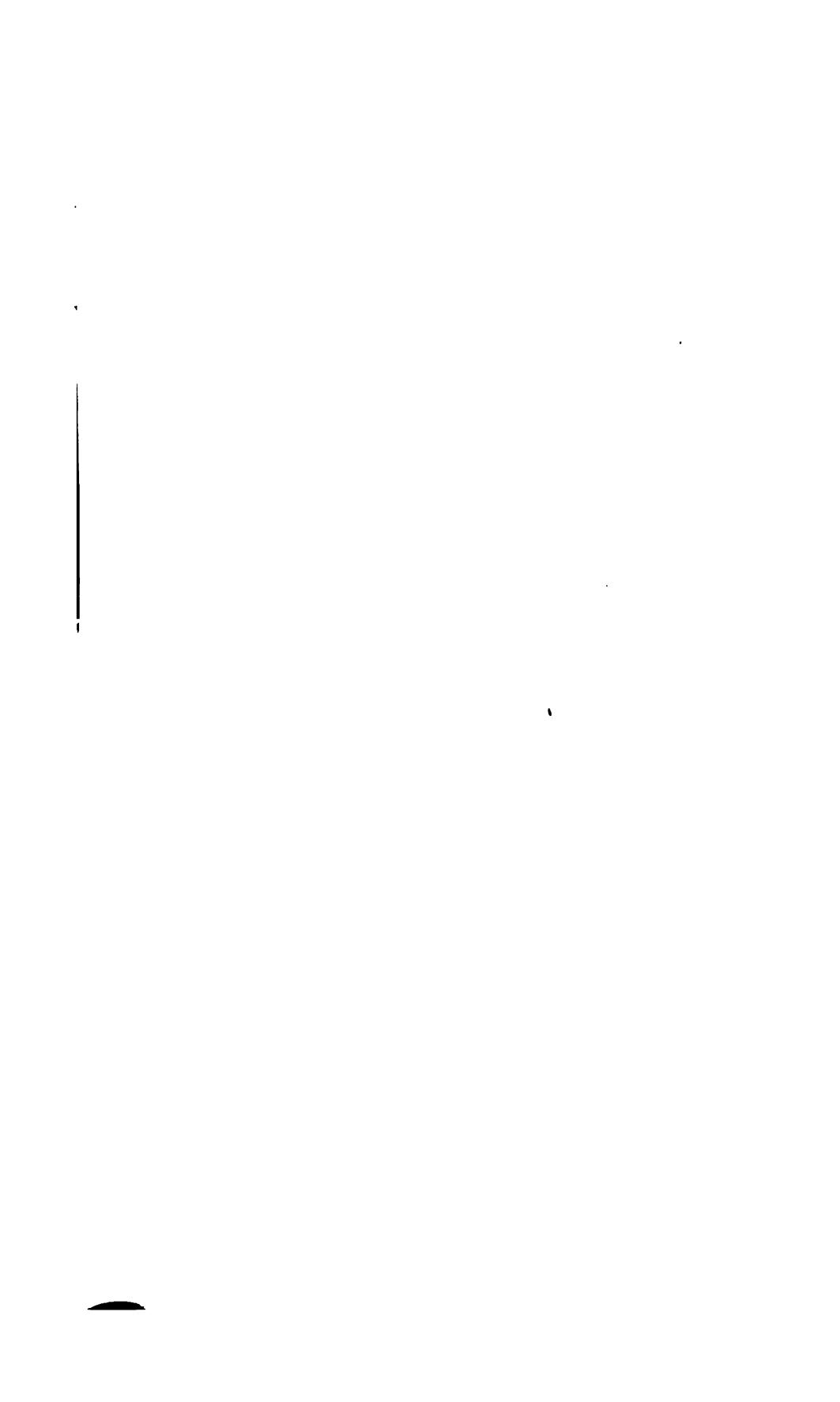
848,922



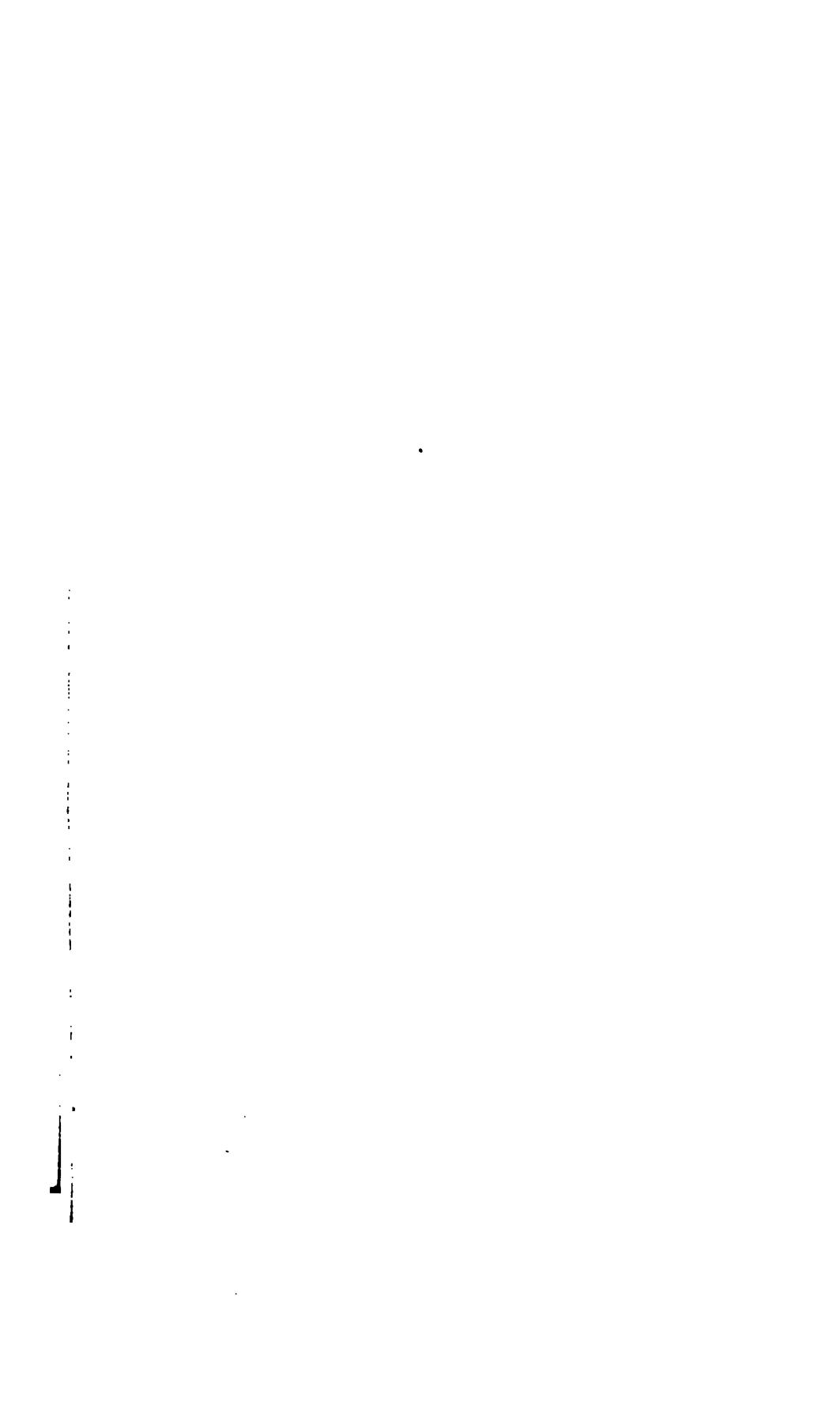
*In Memory of*  
**STEPHEN SPAULDING**  
*1907 - 1927*  
**UNIVERSITY OF MICHIGAN**

100-2000-1-1942









## **THE RIVER PLATE.**

LONDON  
PRINTED BY SPOTTISWOODE AND CO.  
NEW-STREET SQUARE

THE STATES  
OF  
THE RIVER PLATE.

BY WILFRID LATHAM.

*SECOND EDITION.*

WITH A MAP.

LONDON :  
LONGMANS, GREEN, AND CO.  
1868.

18945

18945

when Building them out  
and  
- 3 - 24

## P R E F A C E

TO

T H E S E C O N D E D I T I O N .

---

WITH NATURAL TREPIDATION, yet not without some degree of confidence, I comply with the requests of several friends, and adopt the suggestions of more than one of the leading British reviewers, in presenting to the public a second edition of 'The States of the River Plate,' with additional descriptive and other matter, and a second Book comprising three treatises, viz.

1. Circumstances of colonization and physical condition as determining the character of the populations and affecting political and social institutions.
2. Historical sketch and personal experiences.
3. Political and industrial development and social modifications, resulting from immigration and improved means of locomotion, &c.

I send the book forth with some hesitation, for my ability may have proved unequal to my will, and the scantiness of the time which pressing out-door avocations has left to me at irregular intervals may have interfered with the well ordering of the matter, as it has necessarily interfered with its completeness and amplitude.

But my confidence is grounded on the conviction that the consideration extended to my first essay will be accorded also to the present volume, inasmuch as my aim has been to furnish accurate and useful information on matters and events of general and special interest. To the accomplishment of this task I have taken nothing on trust, relying only on actual experience and on my knowledge of the conditions, circumstances, and events treated of, briefly to state facts and draw deductions.

BUENOS AIRES, 1867.

## P R E F A C E

TO

T H E   F I R S T   E D I T I O N .

---

THE AUTHOR of this work presents it to the public, not as the production of a traveller, or with any pretension to the detail, interesting or amusing, which usually makes up works descriptive of foreign countries.

He presents himself as a plain thinker on subjects of material interest connected with the country in which he has resided or been in relation with for, more or less, twenty-four years, and in which there are settled a very large number of British subjects and their families, towards which there is a continuous stream of emigrants from Europe, a large portion of whom—especially those possessing small or moderate capitals—entertain most erroneous ideas of the country, its industries, and the work that is before them; between which and Great Britain there are very important commercial relations,

and in which there is a very large British capital invested.

His object in writing this work has been truthfully and intelligibly to describe the country, its resources, and climate, with a view to its industries — pointing out various channels for the advantageous employment of capital, fields for labour, and its remuneration, and to usher in the dawn of a more advanced and more sound system of working those industries, by explaining the principles which should regulate the practice of parties engaged, or about to engage, in them ; and he claims from the 'lettered' public that consideration which they may fairly accord to a writer whose daily avocations are the practice of the industries of which he treats.

BUENOS AIRES, 1866.

## CONTENTS.

### BOOK I.

#### PART I.

	PAGE
GENERAL OBSERVATIONS . . . . .	3
DESCRIPTION OF A SCENE AT THE SALADEROS . . . . .	9
ASPECT OF CAMPO AND CAMP-FIRES . . . . .	13
BURNING OF PRAIRIES . . . . .	17
THE LIFE OF A FLOCK-MASTER OR SHEPHERD . . . . .	26
DUST-STORM . . . . .	28
THUNDER-STORM . . . . .	30
SHEEP . . . . .	31
CATTLE . . . . .	34
THE EVENTS ON A CATTLE ESTANCIA . . . . .	38
MARKING . . . . .	38
HUNTING WILD-CATTLE . . . . .	40
THE HORSE OF THE PAMPAS . . . . .	49
SPORTS OF HORSEMEN . . . . .	56
RACING . . . . .	58
TLTING AT THE RING . . . . .	59.

#### PART II.

SHEEP-FARMING . . . . .	61
-------------------------	----

#### PART III.

DISEASES OF SHEEP: THEIR TREATMENT . . . . .	96
--	----

## PART IV.

	PAGE
THE SCIENCE OF HIGH-CLASS SHEEP-BREEDING . . . . .	100
DETAILS OF MANAGEMENT . . . . .	118

## PART V.

OBSERVATIONS ON THE UTILISATION OF RIVER PLATE BEEF . . . . .	138
PROPER CONDITION OF ANIMALS FOR KILLING . . . . .	153

## PART VI.

AGRICULTURE . . . . .	161
THE THISTLE, SEPO CABALLO, ABROJO, AND POISONOUS HERBS . . . . .	188

## PART VII.

THE RIVER PLATE AS A FIELD FOR THE EMPLOYMENT OF CAPITAL AND LABOUR . . . . .	211
---	-----

---

## BOOK II.

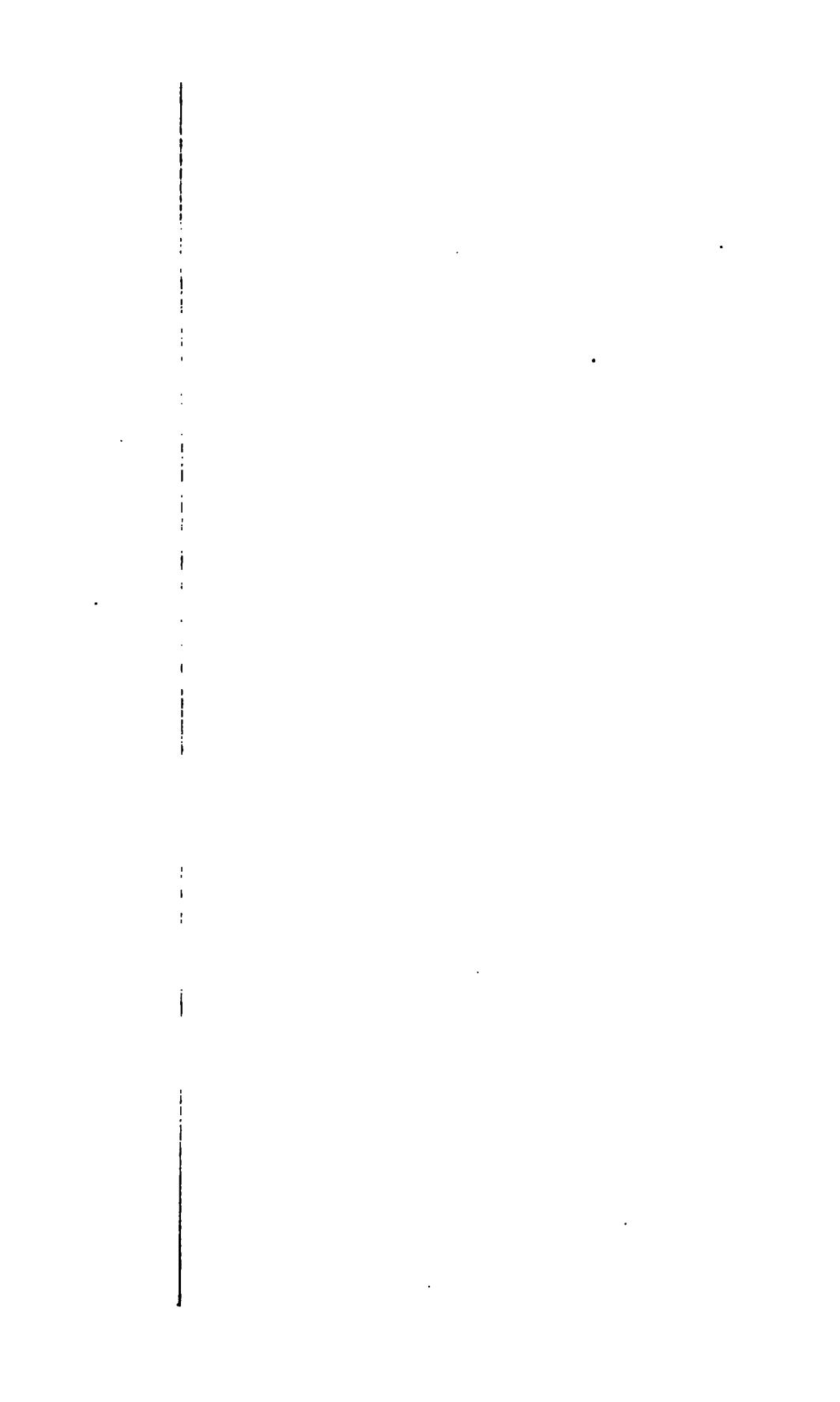
CIRCUMSTANCES OF COLONIZATION AND PHYSICAL CONDITION AS DETERMINING THE CHARACTER OF THE POPULATION AND AFFECTING POLITICAL AND SOCIAL INSTITUTIONS . . . . .	239
---	-----

## PART I.

HISTORICAL SKETCH AND PERSONAL EXPERIENCES . . . . .	257
--	-----

## PART II.

POLITICAL AND INDIVIDUAL DEVELOPMENT AND SOCIAL MODIFICATIONS, RESULTING FROM IMMIGRATION AND IMPROVED LOCOMOTIVE FACILITIES, &C . . . . .	313
APPENDIX . . . . .	345







200

## P A R T I.

### GENERAL.

THE COUNTRIES of the River Plate or Rio de la Plata are those of the Banda Oriental or Republic of the Uruguay, a small State on the northern bank of the Estuary or Rio de la Plata, whose chief city and port is Montevideo ; and the Argentine Republic, on the southern bank, extending south, west, and north, and comprising fourteen provinces, viz. Buenos Ayres, Santa Fé, Cordoba, Mendoza, San Juan, Santiago, Tucuman, Salta, Rioja, Catamarca, San Luis, Jujuy, Entre-Rios, and Corrientes ; its chief city and port being Buenos Ayres.

The Banda Oriental lies on the southern limits of, and is bounded by, the Brazilian Empire ; its eastern coast is washed by the Southern Atlantic, its southern shores by the River Plate, and its western by the magnificent River Uruguay—a semicircle of sea-board and navigable rivers.

The Argentine Republic extends south to the Indian territory and Patagonia, north to Bolivia and Paraguay ; and is bounded to the west, in its whole length, by the Cordillera. The Ocean, the River Plate, and the magnificent Rivers Paraná and Uruguay constitute its other boundaries, the Paraná separating two of its provinces—Entre-Rios and Corrientes—from the rest ; the River Uruguay separating the Argentine province of Entre-Rios from the Banda Oriental. These territories comprise a

range of temperate climate, from a temperature bordering on cold to the south, to the tropical towards the north; with an extensive sea-board, and an internal and arterial system of rivers counted among the finest in the world.

A very extensive commerce is carried on between these countries and the various nations of Europe, North America, and the Brazils, while a very large and important interior or coasting trade extends over hundreds of miles of river coast in the La Plata, Paraná, and Uruguay, where the great depth of water admits of vessels of considerable burthen and draft, the Paraná being navigable for over a thousand miles. Numerous vessels course these rivers, carrying passengers and goods; and their number is constantly augmented by steamers built here or brought from England or the United States.

The foreign commerce consists in imports of the staple productions of the various countries of Europe and America, of England, France, Germany, Denmark, Sweden, Spain, Portugal, Italy, United States, Canada, and Brazil, comprising cotton, woollen and silk goods, hardware, iron, wines, spirits, oils and fruits, lumber, tar, naval stores, sugar, rice, flour, furniture, jewellery, &c. &c.

The exports are chiefly of animal products, of which, in due course, I propose specially to treat. Minerals and vegetable products are also exported.

The delicious and salubrious climate, the extreme fertility of the soil, the wide range and capabilities of production, and the unsurpassed adaptability of these countries for stock breeding, as well as the extent of their river system, render them eminently favourable *per se* to receive an European emigration, and offer many opportunities for the advantageous investment of European capital.

The natural richness and extent of their resources, the facilities of water transit, and the paramount desire for progress which animates the influential portion of the population, their commercial tendencies, the unfeigned welcome and protection extended to foreign settlers, and the full recognition of the advantages derived from immigration and foreign enterprise are in themselves guarantees both to settlers and individual or Stock Exchange investments. Moreover, the recognition and thorough comprehension on the part of the governing classes, of the importance and policy of national good faith, is a feature which must necessarily weigh with capitalists, and produce its fruits in the development of the incalculable resources of the country.

Land and stock are to be had at comparatively low figures, and constitute advantageous investments for individuals and companies.

Railways, steam navigation, canalisation, mining and other undertakings, worthily claim the attention of the Stock Exchange.

Wages are high, and employment far in excess of the supply of labour. These, accompanied as they are by cheap beef, are the greatest inducements that can be offered to the industrious classes.

Montevideo, the capital of the Banda Oriental (or Republic of the Uruguay), is situated near the mouth of the River Plate. It is a well-built city, on a rocky promontory, forming one side of the bay, and offering a safe and commodious harbour, capable of containing several hundred vessels.

The population of the city, which, from the water, displays a very imposing and handsome view, is estimated at 60,000 souls, comprising people of almost every nationality in Europe, the United States, and Brazils, the

foreign element, in which the Italian portion predominates, considerably outnumbering the natives.

The commerce is large and increasing.

There is a noble hospital, a cathedral and other churches; there is also an English Protestant church. Forts command the entrance of the bay from the mainland and an island in the bay; and there are several moles and jetties, a custom-house, lighthouse, and other public buildings.

The country of the Banda Oriental is undulating, with spurs of hill ranges here and there. It is well wooded in some parts, but the timber is of no great size. It is remarkably well watered: through the heart of the country flows the Rio Negro, into which innumerable tributaries empty themselves, as seen on the map. This river and its affluents stand to the country in a relation not unlike that of the arterial system in the human frame, a main trunk with ramifications extending everywhere, vivifying and fertilising.

The face of the country, as I have said, is undulating. Rocks and boulders crop out of the higher parts, and rich soil, luxuriant herbage, and broad stretches of woodland descend to and in parts follow the courses of the rivers and brooks. On the borders of the Rio Negro and its tributaries, great quantities of sarsaparilla grow, with which the waters are more or less impregnated. Certain points of these rivers are, in consequence, visited by invalids.

## II.

### BUENOS AYRES.

Buenos Ayres is a large and handsome city, the streets intersecting each other at right angles, equidistant, and forming blocks of houses of about 140 yards square. The

extension of the city during the past few years, and the number of magnificent houses built, many of them meriting the denomination of palaces, may well astonish the spectator. It possesses several large and handsome theatres, an opera-house, concert-hall, club-houses, exchange, custom-house, and other public buildings: the cathedral is a large and handsome building, with a noble composite façade, and there are many large and solidly built churches.

The population is estimated at 200,000 souls, and as it comprises representatives of almost every civilised nation in the world—about half its population is foreign—there is a perfect babel of tongues. English, French, German, Italian, Portuguese, salute the ear at every step: everywhere may be seen foreign banks, commercial houses, shops, wholesale and retail general stores. Every trade and calling is pursued with perfect liberty by foreigners of every denomination. Many ship-building yards exist, where steamers and other vessels for the river-trade are built; and there are an English church, Scotch Presbyterian, American and German churches; an Irish Roman Catholic chaplain and several assistants; the British hospital, a large and well-regulated establishment; the Italian hospital, a remarkably handsome building; an Irish hospital; the convent and schools of English and Irish sisters of mercy; British newsroom; library; English daily newspapers; a cricket club, and a race-course.

There are three lines of railways in the province of Buenos Ayres, gradually extending farther and farther into the country—one to the north, taking the line of the principal northern traffic, and the others to the west and south—all opening up the most important trading districts in their respective directions.

Another railway—the Central Argentine—is in course of construction, not in the province of Buenos Ayres, but with its terminus in the province of Santa Fé, at a port called Rosario, and taking its line through the province of Cordoba to the city of the same name, the focus of communication with the northern and north-west provinces. The importance of this line of railway cannot be overestimated. At Rosario, several lines of steamers from Buenos Ayres call, touching *en route* at several ports on both banks of the Paraná above and below Rosario. Each of the several ports is a distinct centre of trade; to which goods are shipped from Buenos Ayres, and the produce of these districts is forwarded to be shipped per steam or river craft to Buenos Ayres or Montevideo.

The port of Buenos Ayres is an open roadstead, with inner and outer roads, divided by a sand-bank, or bar, with good anchorage in both. The vessels are discharged by, and loaded from lighters, which land and receive cargo at moles or jetties, or are beached, and their cargoes taken from or to them in high-wheeled carts, or at wharfs on the banks of a small river, the 'Riachuelo,' in the vicinity of which are situated the chief 'Saladeros,' killing and salting establishments for hides, tallow melting, &c. ; also barracas, or warehouses. River craft, with produce from the several ports of the Rivers Paraná and Uruguay, frequently lie alongside or discharge their cargoes at once on board the foreign vessels in the roadsteads.

The articles of export, both from Montevideo and Buenos Ayres, are chiefly animal products—hides, dry and salted, jerked beef, bones, horns, tallow, hair, wool, skins, ostrich feathers, &c. Tobacco and some other vegetable products are also exported, but in comparatively insignificant quantities ; also copper and other minerals. . This

class of products will doubtless form a comparatively larger proportion of the exports than at present, when the communication with the interior provinces is established by means of the railway now in course of construction, and by the canalisation of rivers which flow thence to the Paraná.

The scene at the 'Saladeros,' in the killing season, is strange indeed to European eyes. Herds of fine semi-wild cattle, consisting of several hundred head, are driven in from the country by mounted herdsmen, looking as wild as the cattle they drive—the affrighted animals bellowing and making desperate attempts to break away as they approach the pens—the mounted herdsmen swinging their lassos and dashing at the cattle on flank and rear, to close them into a compact phalanx, so as to force the foremost on. If there is the slightest break in the mass, from an inequality of pressure, through which an animal or two can contrive to turn, there is a wheel and a stampede: and then away go the gaucho drivers, as if fleeing before the galloping, maddened herd; but, with their fleet horses, crossing and recrossing in front and on the sides, they gradually close up the ranks, succeed in turning the cattle again, and so work them till they get them into the pens (corrals) of tall hard wood posts, six to eight inches in diameter, by eight or ten feet high, ranged alongside each other, and bound together by cross bars securely lashed. Occasionally, indeed frequently, a knot of two, three, or half a dozen animals will break away from the lot, and then away go the skirmishers with lassoes whirling in the air, at headlong gallop to come up with the runaway beasts. As it would be a vain attempt to turn them, the lasso is thrown, the noose goes over the animal's horns, the well-trained horse answers to the rein, and galloping to

one side, comes suddenly to a stop ; the animal is swung round, a second lasso is thrown by another horseman ; one takes one side, the other the other ; the enraged beast rushes to and fro, but he is checked by the lassos ; and so, by the dragging of the lasso-men and his own mad rushes, he is worked on to the remainder of the herd. At other times, he is hamstrung by a third person, and left until, the herd being penned, they return to kill and skin him.

The process of penning the cattle being in due course achieved, the slaughter commences, and the operation is effected as follows :—

To the corral or pen, there is a narrow neck, eight to ten feet long, closed with cross bars at the end, the lower bar being sufficiently high to admit a low truck to be run under it, in and out, with its burthen ; the top bar consists of a roller. By this neck there is a stage, on which stands the lasso-man ; the truck being run in, the lasso-man takes the noose and coils of the lasso, and, swinging it, throws it over the horns of one of the animals ; a horseman outside has the end of the lasso attached to the saddle (recado) of his horse : the signal is given as soon as the lasso is cast, the horseman moves rapidly on ; the lasso running on the roller bar draws the animal into the neck of the pen and on to the truck, bringing the horns 'taut' against the roller bar. The slaughterer stands on the stage, knife in hand : as soon as the animal is in the position required, he introduces his knife behind the horns, and divides the spinal marrow at its junction with the head. The animal instantly collapses ; the lasso is loosed from it, and the truck is run out on a tramway which occupies the centre of a flagged platform, under a shed, along which, on each side, are ranged the flayers. The dead animals are cast off the truck to the flayers

in turn. The hide, being taken off, is doubled up and taken to the salting-house, where it is stretched on the pile of hides, and salt cast over it with shovels; meanwhile, the carcase of the animal is cut up and carried to another salting-house, where the meat is sliced into thin flakes and laid in a pile, with salt. The fat and the bones, with that portion of the meat which is unsuitable or cannot be conveniently cut into flakes, goes to the vats, and is steamed to extract grease and tallow.

When the beef has lain in salt a sufficient time, it is taken out and hung on rails (*tendales*) in the open air to dry; thence it is removed and built into large piles, square or round (in the open air), and covered with tarpaulins until ready for shipment. The meat thus prepared is known as 'jerked beef,' and is chiefly shipped to, and consumed in, the Brazils or Havannah.

The business of preparing hides, tallow, and beef, is one of the most important carried on in the province of Buenos Ayres, Entre-Ríos, and Santa Fé, and in the Republic of the Uruguay.

The hides of the animals slaughtered for the consumption of the town or country are nearly all staked and dried.

At the 'Saladeros,' mares in large numbers are slaughtered, the hides salted, and the carcases steamed for grease. The tallow and grease having been drawn off, the refuse matter—bones and beef fibre—is removed; the shank, shin, and other large bones are picked out for shipment; and the smaller bones and beef fibre are used as fuel for the furnaces of the steaming apparatus, to the extent required, the remainder being made into large heaps and burned. The ash from this and from the furnaces is the bone-ash of commerce. The manes and tails of mares,

and the tails of cattle, furnish hair, &c., for shipment. The hoofs and horns are likewise shipped.

The killing grounds for the supply of beef to the towns present an animated and singular scene:—A large open space, with lines of pens, or ‘corrales,’ into which the cattle of the different dealers are drawn. The butchers purchase and select the animals they require out of the pens; all are mounted on well-trained horses. To take out the selected animal, a lasso-man enters, throws his lasso, and darts out of the corral, half dragging, half chased, by the bellowing animal, while others keep back the rest of the cattle. Another and another is selected, lassoed, and drawn out: away they go with the lasso-men, the animal either rushing after them or on some of the groups, and followed by other horsemen at full speed, until they come near enough to throw the second lasso, which is cast over the horns or on the hind legs, and the two, taking contrary directions, bring the animal to a stand or throw it over. One of the men dismounts; the horse, knowing his work, keeps the lasso ‘taut,’ while the man approaches the animal, and, according to its position, either hamstrings it as a preliminary, or at once ‘piths’ it, by introducing the knife behind the horns. The flaying then commences, care being taken that the carcase remains on the hide, on which it is cut up, so that the meat is not soiled. There are three or four flayers to each animal—sometimes as many as sixty or eighty animals undergoing the operation of flaying and cutting up at the same time. These flayers, wild-looking fellows, dressed or half-dressed in various bright colours, scarlet predominating; the gaily caparisoned horses of the butchers, many of them glistening with silver trappings; rude carts, ruder-looking drivers, and various coloured horses; the background of pens, still half full of cattle, all contributing colour and artistic

grouping, make up, if not a pleasingly picturesque and gay scene, at least, illuminated by the oblique rays of the morning sun, a very sparkling and brilliant one, and altogether novel to Europeans.

The 'emissaries' of the sausage-makers, dogs and swine, serve as the scavengers, aided by clouds of gulls and hawks, while the snow-white and grey plumage of the swooping whirling thousands of the winged inhabitants of the Pampas, ever moving in the sunlight, adds not a little to the brightness and singularity of the effect.

### III.

The aspect of the country or 'campo' of Buenos Ayres, and its geological character, is wholly different from that of the Republic of the Uruguay, or Banda Oriental.

The province of Buenos Ayres, excepting far away south, where there is a spur, or high range, is one vast level plain—a rich alluvial soil without wood—except here and there, where one or two trees, or a small plantation, mark the site of an 'estancia' house, or a 'puesto' or station. A solitary 'ombú' tree, with its enormous trunk and great arms, its dark green and dense foliage, affords, here and there, shade to a group of cattle or horses, or to the weary traveller; otherwise the plain is clothed in rich herbage, watered by sluggish streams, shallow lakes and pools, and covered with vast herds of cattle, horses, and flocks of sheep.

I cannot conceive anything more exhilarating than a gallop across the plains of Buenos Ayres on a bright, clear morning, or in the cool of the afternoon or evening; a cloudless sky of deep azure, an atmosphere marvelously light and pure communicating a sense of indescrib-

able buoyancy and pleasurable existence—a soft breeze flowing, as it were, over the vast plain, boundless as an ocean—contribute to engender an irresistible feeling of joyous freedom.

One of the effects of the climacteric influences on residents in the plain is to render them comparatively independent of what in England are called comforts. Men seem to revel in mere existence; life is pleasurable to them for itself, and this frequently renders them careless of accessories and prone to take things easily, often too much so. As it is easy to live, and wants are few, there is a disposition to eschew exertion. The sense of the expanse doubtless contributes to this; there is no obstacle, all is open and wide; resistance stimulates to exertion, and something within reach is needed to excite action and develop energy. When the plain fades away in the far distance, and the long vista presents no objects but such as are insignificant in relation to the expanse, a consciousness of impotence is engendered, tending to produce a disinclination to effort.

In the 'campo,' the horse is man's companion and resource, the one thing that leads him to motion, which carries him through space and shortens it. No one is afoot in the plain; from comparative infancy to old age, every one rides; all work is done on horseback, and only with the stimulus of the animal movement is energy awakened.

The 'campo'—a plain—has its own peculiar beauties and aspects, varying with the season. The unbroken carpet of short green herbage of the winter is changed to vast sheets of colour in the spring. Luxuriant grasses, tangled clover (spotted medick), with its broad leaf of rich green and black spot, are intermixed over vast tracts with the young variegated-leaved thistle, remarkable by

its large green and white foliage; a little later on, the wild flowers mingle with the tall grasses or overtop them, forming immense sheets of colour. Acres upon acres are brilliant with scarlet vervain, gorgeous in the light, or purple or white verbena. Leagues of a rich purple flower, the 'flor morada' (a plantain), change to bright rose as the setting sun casts its warm oblique light upon it. The tall 'biznaga' may be seen, with its head of clustered white florets; the branching many-flowered camomile, and numberless others, white, pink, yellow, &c.

From these broad lines or sheets of colour, we enter on the great thistle camps. There are two varieties of thistle, the one annual, tall, variegated, broad-leaved, known in the garden in England, and growing in this country to the height of eight or ten feet, in dense array, impenetrable except in the cattle track. These beds of thistle extend leagues and leagues, and at the time of flowering, as far as the eye can reach, present an almost unbroken sheet of rose-purple flowers. In some districts, a day's ride along a road or track, on either side of which stretches this forest of thistles, leaves the traveller still with the same forest stretching to the horizon. Thousands of cattle browse unseen amongst the thistles, working tracks through them, feeding on them and the grasses which grow up with them. On the lower lands and edges of pools, the thistles do not grow. About midsummer they seed, wither, and fall, a heavy rain and a stiff breeze quickly knocking them down, while the soft stem breaks up under the action of the sun and rain. The cattle and sheep grow fat as they feed on the oleaginous seed and withering leaves. In the autumn, other grasses, distinct in variety, which spring up and cover the ground, obliterate almost all trace of the fallen thistles. In the autumn and winter the thistle seed germinates, and the tender leaves of the

plants, with the various grasses, are fed on by the cattle and sheep.

The other variety of thistle has a life of several years; this variety is in fact the wild artichoke, and has the same colour and foliage as the cultivated plant: the stem is stout and hard, and makes excellent fuel. This also occupies large tracts of country; the cattle, horses and sheep feed on the young leaves, and, by breaking down the plant with their hoofs, reach the heart, which is palatable; they also bite off the thistle head and feed upon the seed.

There are other tracts of country which, lying low, produce a coarse reedy herbage and Pampa grass, which, growing tall and spreading, affords shelter for whole herds of deer, numberless partridges, large and small; and in the marshy ground and pools, congregate myriads of wild ducks, plovers, cranes, spoonbills, flamingos, geese, swans, wild turkeys, and snipe in the season.

The tracts of land covered by the tall sedgy grasses are called 'pajonales'; such portions of them as do not lie too low are converted into excellent pasture lands by burning; on a clear dry winter's day they can be fired with ease, and without danger. I have seen a 'pajonal' fired, and aided in firing it in fifty different parts, of a winter's morning—the flames rising to a considerable height, and travelling with the course of the wind until some break is reached or some green patch restrains them. These fires will sometimes continue through the night, producing a singular effect.

In the summer time, on the great thistle beds, when the light dry stems are like so much touchwood, there is great danger of fire; from time to time much damage is done by the accidental igniting of the dry annual thistles.

These 'campo' fires are often very serious affairs. The dry thistles standing or leaning over, intersecting each other at different angles—the long dry grass and trefoil, laid and entangled, extending over leagues of plain heated by the sun—are ripe for conflagration. A careless fellow strikes a light for his cigar, and heedlessly throws down the match, or drops the live ash or the end of his cigar, and instantly the grass ignites, and, if there is a breeze, as instantaneously starts into a blaze, which, spreading right and left, soon acquires the breadth of hundreds or thousands of yards, as it sweeps onward, crackling and roaring. Terrified cattle, mares and sheep, fly before it, or are driven by affrighted shepherds and herdsmen, enveloped in curling waves of smoke: sometimes many are encircled and lapped in the flame. As it sweeps onward, here and there a taller blaze leaps up, and in a few minutes sinks; denser masses of smoke then roll up, and interfolding, chase each other to the clouds as some thatched 'puesto' is consumed.

Neighbours congregate, anxious and fearful; 'Trair yeguas!' (bring mares) is the cry; wild mares are 'balled' or 'lassoed' and stabbed; two mounted lasso men attaching themselves to the fore and two to the hind legs, drag the carcase along some distance ahead of the face of the on-marching fire; another and another follow on the same track, brushing away the dried vegetation, moistening the ground with the carcase juices, and leaving a cleared belt over which the flame does not pass;—the fire is stopped; but over the leagues it has traversed lies a soft carpet of black and grey charcoal dust, out of which arise little wreathing jets of white smoke ascending from tufts of strong weeds or from cattle droppings, which continue to smoulder, and from which, from time to time, lap out feeble tongues of flame in answer to the wooing breeze.

The burning of the virgin or semi-virgin plains of the outside campos is of course a very different affair from the accidental burning of inside ones crowded with cattle and sheep. On these rough campos there is an immense growth of strong, coarse herbage—hard grasses intermingling with the red paja—paja colorado—interspersed with large tracts of ‘paja cortadera,’ true Pampa grass—and the hard thorn-pointed ‘paja brava,’ a rank growth, on much of which animals do not feed.

The perpetual clothing of the land with this rank vegetation necessarily prevents the action of the sun on the soil, and the consequent sourness, probably from the generation of silicic and other acids, gives rise to conditions productive of reedy or sedgy herbage. The burning of the campo at once admits the action of the sun on the soil, and at the same time deposits an alkaline ash, with carbon or charcoal, which, being washed into the soil by rain, gives rise to a tenderer herbage, and sweetens the ‘pajas’ themselves, so that animals will feed on their tender shoots, thereby checking their naturally rank growth, and permitting the growth of finer grasses, which is further encouraged by the droppings of the animals, whose trampling assists in keeping down the pajás until the conditions favourable to their growth are destroyed.

I have just returned from a trip of inspection of outside camps, ‘navigating’ by compass through a sea of vegetation, now on a ‘steppe,’ trackless as the ocean, and presenting the appearance (it is the autumn season) of a boundless meadow of ripe grasses. Looking down on this from the saddle, we see the scarlet verbena, blue nemophila, the cream-coloured ‘romerillo’ (a poisonous plant), with many others, from out of which rise numberless large and small partridges, falcons and hawks soaring above, and deer start, face round for a moment, and then

bound away. Anon we dip into the 'cañadones' (bottoms or lower levels), where the paja cortadero (Pampa grass), in full flower, stands in broad patches of hundreds or thousands of acres, or stretches in belts miles or leagues along the course of the 'cañadones,' gracefully bending its floss-like panicles, standing in close array, to the light breeze, and glittering in the sunlight like pearl-studded plumes, which brush the horseman's elbows as he goes upon his way. Beautiful as it is, it must disappear, that cattle and sheep may browse where it has stood.

In the autumn, there is enough of dry herbage to effect the burning of the camps, and yet sufficient green vegetation to detain the flames; so that the fire does not travel so quickly as to cause apprehension for any cattle or mares which may be on the steppe. As we canter over the plain, smoke rolls up on every side, and moves along broad pathed, many tinted and bright fringed by the sun. Now we ride parallel to the burning, or cross it in front, or wait until it passes at our feet, and then crossing over the burned surface of the broad meadow, follow the flames to the great beds of 'paja cortadero,' where they rise up taller, and mingle with a denser smoke, out of which the scorched panicles of the beautiful Pampa grass may be seen toppling over.

The best lands for sheep in the Argentine Republic are those of the province of Buenos Ayres, within a radius of fifty or sixty leagues of the city. They are likewise superior to those of the Banda Oriental: the grasses are less coarse, more tender and shorter. They have been more fed over, and to this may be attributed the finer character of the herbage. An improvident practice of over-stocking has, however, very much deteriorated some of these otherwise 'superior camps,' which will require some years, or a year or two, of comparative rest to re-

suscitate them: many of the best grasses have almost disappeared, a natural consequence of overstocking, especially as most of the grasses being annual, and having had no opportunity of seeding, have become extinct, or only grow to a limited extent. The consequence of this is that their place has been almost entirely usurped by the clover (spotted medick), which, from its luxuriant trailing growth, and the great abundance of its seed, protected by prickly spiral pods, propagates itself readily, aided by the thistle and strong weeds. Hence when the annual clover dies down and dries in the sun, all is brown and parched, and strong winds sweeping over the higher grounds roll up the withered stems and carry them away, leaving the bare soil, into the dust of which the seed is shaken, and out of which it sprouts with the autumn rains. On such lands the sheep and cattle pick a scanty subsistence from the roots and seeds in summer. In a season of continued drought they no longer find this food, and die in great numbers.

The aspect of the country or camp in the summer and commencement of autumn presents a marked contrast to the other seasons. All is parched and brown; the thistle and trifolium have disappeared; in the lands where there are tall grasses, they too are brown and fallen: under the shelter of these, however, if there have been a few summer showers, young grasses spring up, and this tender herbage and the dry grasses intermingled constitute good food; and when there is water, the animals do well. In great droughts, on the other hand, all lakes and most of the brooks and streams are dried up, so that if there is no means on an establishment (as through improvidence is sometimes the case) to draw water from wells sunk for the purpose, immense loss is sustained; cattle die by thousands, and others stray away to great

distances in search of water ; the majority of those which have not perished returning to the land on which they were bred, on the reappearance of a better state of things. Sheep farmers have occasion, in districts visited by drought in an unusual degree, to travel their sheep to other lands, taking them many leagues. This, however, is not often needed, and generally the necessity arises on those establishments where over-stocking has been practised.

The seed-pods of the trifolium (medick clover) are a great detriment to the wool of the sheep of Buenos Ayres when the shearing is delayed to the season of the ripening, and is known to the wool buyers as 'carretilla,' or small burr.

In the Banda Oriental, Entre-Ríos, and Santa Fé, there are very good sheep lands, some few of which can be compared to those of Buenos Ayres : the coarser lands, however, will improve under judicious stocking. In the province of Buenos Ayres, without the radius spoken of, there are lands which have the same disadvantages as those of Entre-Ríos, &c. The grasses are somewhat coarse and strong, and in many parts of all the above-mentioned provinces they are so much so as to be quite unfit in their present state for sheep, and will be so until they have been well stocked with cattle and fired, as described in the foregoing pages. The seed-sheaths and stems of the grass, known as the 'flechilla,' or arrow-grass, which abound in certain districts, adhere to the wool and mat it, and also work their way through the skin of the sheep into the very flesh. This 'flechilla' is well known in Australia.

Around the large towns there is generally a radius dedicated to agricultural purposes ; outside this, for a number of leagues, say forty or fifty, in the province of

Buenos Ayres, the lands for the most part are devoted to sheep pastures ; beyond them again, the cattle establishments predominate, the advance of sheep farming gradually and steadily driving back the cattle to greater distances, and on to the coarser grasses. The latter eating down the coarser herbage, fit the land for the reception of sheep, and I have little doubt that, in due course, many tracts of country, at present unsuitable for sheep, will become equal to those now esteemed as the best.

The soil in the province of Buenos Ayres, parts of Entre-Ríos, and Santa Fé, is a deep rich alluvium, that rests on a subsoil of siliceous clay, as the rule, without so much as a single stone or pebble. In the lower lands which have been more recently freed from surface-water by the rising of the land or the receding of the waters, the layer of vegetable loam is less deep, and the soil retains somewhat of the character of mud deposits, with more or less sand, clay, or shell lime. In the Banda Oriental and parts of Entre-Ríos, a rich loam rests on rock formation, more or less near the surface, or on a subsoil of compact sandy shale and clay ; rock crops out from the soil, and the débris of rock mingle with it. A considerable extent of woodland furnishes everywhere abundance of fuel and materials for 'pens' and hut building ; but while it affords shelter, it diminishes the available space for grazing purposes.

#### IV.

The exports and the nature of the country sufficiently show that the chief industry of the Rio de la Plata is pastoral. Within a radius of a few miles or leagues round the cities or towns, the lands are occupied by agricultural farms, where grain, wheat, barley, and maize

are grown, as well as lucerne, for soiling and hay-making, with potatoes, pumpkins, and other items of agricultural produce. There are a few establishments in which this is combined with the breeding of fine stock and fine sheep—for ram-breeding of the Negretti and Rainbouillet breeds, shorthorned cattle, and where English blood sires, Cleveland bays, and cart stallions are kept for breeding purposes. The land within the radius is all fenced in with wire fence or hedges of the ñapinday, a prickly plant of the mimosa order, closing its leaves at sundown and in rain. There are also large plantations of peaches, apricots, and nectarines sown partly for fruit, but chiefly for fagots, being cut for this purpose every third or fourth year. Other plantations are of paraiso and acacia, and supply posts for fencing purposes; there are also willow groves and Lombard poplars. In the Banda Oriental, Entre-Ríos, and in the islands of the rivers, there are, besides these, woods of tala, espinilla, goiava, and an exceedingly hard wood known as ñandubay, valuable for fences, cattle pens (corrales), &c. This wood is so durable that posts which have stood in the soil for a hundred years have been taken up from the corrales perfectly sound. In the villas and gardens, in the outskirts of the cities, there are vineyards, orange groves, pomegranates, apple and pear trees in great variety. The vegetables and flowers are of the sorts cultivated in the flower-gardens, green-houses, and kitchen-gardens of England. Many of the hedges of gardens and villas are of the varieties of aloe, cactus, prickly pear, elder and blackberry.

Outside the agricultural farms of Buenos Ayres, the great sheep-walks almost monopolise the campo. The development of this interest has been rapid and most important during the past thirty years. Estancia after

estancia, district after district, has passed into the hands of the sheep farmer, or has been devoted to this purpose by the owners. The country is mainly indebted for this to British settlers, under whose auspices it has grown year by year into greater importance, while they have become some of the largest landowners in the country.

The value of sheep has increased tenfold within the past twenty years, and land has improved in value in the same ratio, though at first more slowly. I remember the time when flocks of sheep were offered and sold at 7\$ or 10\$ per head; and a few years prior to this, Creole sheep were of so little value that their carcases were cast into furnaces to serve as fuel.

The improvement in the sheep and their increased value are due to the introduction of Spanish Merino and Saxony breeds, with which the Creole and Pampa sheep were crossed and continually refined. The flocks, reduced in numbers and better tended, rapidly increased, the animals became more domesticated, the flesh as well as the wool improved, and the yield of grease was augmented.

So important was the improvement of the sheep in all points that, with the course of refining, the value year by year rose, until good cross-bred sheep reached the prices of 40\$ and 50\$ each, and the wool of the best flocks could be compared at no great disadvantage, in point of fineness, with the Merino; but in consequence of the dirty condition and large quantity of 'carrilla' or burr, its market value was in no way commensurate with its degree of fineness.

As may readily be supposed, with the rapid increase in numbers, equivalent to a compound interest of 25 to 35 per cent. per annum, and augmentation in value both of sheep and lands, considerable fortunes were made from

very small beginnings, and with little or no trouble or outlay in the management. In lieu of payment in cash to shepherds, the owners of the land and sheep freely gave flocks on halves, say half the increase and half the wool. These shepherds, many of them of the poorest classes of English and Irish immigrants, participating in the benefits of this rapid augmentation in value of the stock, throve with their employers; and on the expiration of their contracts, and the division of the increase, moved with their flocks on to lands rented at a mere nominal figure, and finally became purchasers of land, half a league or one or two square leagues in extent, and owners of many thousands of sheep.

This phase of sheep farm management in due course reached its climax, and, passing the interest or share given in lieu of wages, soon became much more than an equivalent to a good wage. The interest given was reduced in the new contracts to one-third, and then to one-fourth, and ultimately, according to the situation of the land and the quality of the sheep, to one-third and one-fourth of the increase, without wool; and the majority now pay their shepherds' wages in money. From the first, many flock-masters, resident on their property, have pursued this latter course, and consequently have had a more rapid augmentation of wealth.

Sheep farming practice is again entering upon a new phase. The comparatively higher value of land, with the fact that the land within forty or sixty leagues of, and in one or more directions considerably more distant from, the city of Buenos Ayres, is fully stocked, is forcing the tide of sheep farming extension into other provinces and other States, into the Banda Oriental (or Uruguay), Entre-Ríos, and Santa Fé, as well as to more distant parts of Buenos Ayres, where lands, if not quite equal to those of

the accredited sheep lands of the latter, are lower in price, more easily obtained, and are capable of being much improved by stocking. As moreover the maximum of improvement attainable, on the old system of management, and from the Saxon Merino cross, under such system, has been attained, the lands are found to bear a value fully up to that of the sheep and the yield of wool obtainable from it. The fleeces are very light, the wool short, fine, and deficient in strength, the result of slovenly breeding, management, and overstocking of the land. In view of these things I am convinced that the 'actual' position of sheep farming in the Rio de la Plata offers a brilliant opportunity to the pioneers of an improved system of management and breeding, with the object of producing a more robust animal, one of larger carcase, yielding much more meat and grease, a fleece double the weight, and wool as long again in staple, and at the same time more sound and elastic than the average of the present stock. The means to attain this end will be suggested in another part of this work.

## V.

Sheep estancias are of various extents, ranging from half a square league to four and five or more square leagues. There are combined cattle and sheep estancias of very much greater extent; many proprietors count from 20,000 to 100,000, and in some instances a still greater number, of sheep in their possessions.

An establishment of this class consists of an estancia house of more or less pretensions in size, round about which may be seen generally plantations of paraiso, acacia, poplar, willow, mulberry, and some few sturdy 'ombú'

trees, and in some cases peach plantations, out-offices, sheds or 'galpones,' horse 'corrales' or pens, and sheep 'corrales.' These 'poblaciones'—habitations, with their foliaged surroundings—stand out clear in the plain, and are seen for considerable distances. Travelling farther and farther out into the plain, they become fewer and farther apart. On different parts of an estancia there are erected the huts of the shepherds, with their 'corrales,' called 'puestos' or stations, which, with a certain extent of ground, are allotted to the different shepherds or 'puesteros' for the run of the flock under their care. For the maintenance of the 'puesteros,' the meat of a wether (capon) or aged ewe is allowed between three or four, the skin, tallow, and grease being set apart for the proprietor, and collected periodically. The 'puestero' provides his own 'yerba' (Paraguay tea) and sugar, and, if he indulges in the luxury, his own biscuit and salt.

Fuel he provides himself with from the stems of the hard 'thistle,' 'biznaga,' or the excrement of the sheep, cut out of the corrales in solid cakes and dried, dried cattle droppings, and animals' bones. He makes his fire either in the open air, in the centre of his hut, or under a shed outside ; he runs a long spit, 'asador,' through the meat, and sticks it in the ground with an inclination over the fire. There are many, however, chiefly foreigners, who show more refinement, and possess a table and chairs, frying-pan and saucepans, plates, knives and forks, and will set a benighted traveller, who seeks their hospitality, down to a good stew, with rice and eggs, in addition to the customary sweet roast or 'asado,' laid out on a clean table cloth, a cup of genuine Congou or Souchong, with ewe's milk, and the never failing 'drop' of spirit to drive the cold or keep the heat out ; and last, and best of all, a hearty English, Irish, or Scottish welcome.

If there is a tidy 'wife' in the cabin, he will have a clean pair of sheets and a blanket, and a gay quilt to sleep under. In some rare instances, a 'beautiful *fither* bed,' brought all the way from the 'Ould Conthry,' will be produced for highly honoured guests, in which, if the temperature happens to range at about 80° Fahr., the perspiring guest is fairly smothered.

The life of a shepherd in the camp is solitary enough: a man who does his duty should never leave his flock until, at least, they are shut up at night; and then not for long. It is not always that a flock is shut up in the 'corral; ' in fine weather they are left on the 'rodeo,' a bare piece of ground near the house, to which they are driven to pass the night, where they have more space, are kept cleaner, and can rest perfectly quiet. In wet and dirty weather it becomes impossible, without serious prejudice, to put them into 'corral,' on account of the accumulation of excrements and mud. Under these circumstances, on stormy nights, the shepherd is required to be up with his flock, riding or walking round them ('rodeando' them), to prevent their driving before the wind and rain. In heavy gales large numbers have not unfrequently been swept away, and, encountering a swollen brook, have plunged head foremost into it, under the pressure of the hindermost, all being thus destroyed.

In the daytime, in a storm, they are very apt to drive, and especially in a dust storm, by which, occasionally, great losses and considerable inconvenience are incurred, through the mixing of the flocks.

Those who have no sheep to lose or get mixed, and can appreciate the grandeur of the war of elements, have occasional opportunities of contemplating strange and wondrous scenes. A great dust storm has a grandeur of its own. The day has been close and oppressive;

towards afternoon a dark leaden colour marks the line of sky on the horizon, and gradually rising against the wind, assumes dyes of deep purple and brown, as though laid on in broad flat washes, as the painters say, intensifying in colour and assuming fantastic shapes, not rounded as in clouds, but flat, sharp-edged, and metal-like. There is no time to be lost—urge on your horse. Suddenly the wind veers and comes with a rush, which nearly sweeps you from the saddle: before it is possible to dismount, the blinding dust pours over you, striking sharp against the skin. Denser and denser it drives. If there is no cover, lie down and place your hand over your mouth. The rushing wind brings with the dust fragments of dry herbage, and the thorn-armed heads of the great 'thistle,' wounding as they strike. In a few moments, total darkness envelopes everything—not the thin darkness of night, but an impenetrable, 'palpable' darkness, no object being discernible an inch from the eyeball. We had such a storm last year, and numbers, terrified, believed the day of judgment at hand: old men and children were swept away and lost or bruised; in the city, the crash of glass, the cracking of walls, bursting of doors, and in more than one instance the crumbling of walls of houses, and the cries of the affrighted, added terror to the scene. Many threw themselves from the windows and balconies, and perished. In the 'campo,' 'ranchos' and sheds were unroofed, and flocks and herds driven leagues before the storm. I was fortunate, in gaining the shelter of the plantation round my house; but I was exposed to the danger of being crushed by the branches and trees which, swaying and tossing madly in the rushing wind, cracked and fell around me.

I gained a stout trunk and held on to it. There came

sharp strokes from large rain drops, which, passing through the dust-charged atmosphere, had acquired the consistence of mud, and almost forced me to leave go my hold to protect my hands and face. Faster fell the rain, and then a little light came gradually, enabling me to find my way to the house—an unrecognisable figure, bathed in thin mud—only to bind a poncho about me and rush out again, assemble the hands, and round up the stock.

A heavy thunder-storm is a magnificent scene, viewed from the plain, from whence the whole heavens are visible with the horizon. Grand is the gathering and closing in of the great thunder clouds, rising from all quarters. A complete circle of cloud alternately vomits fire and floats in an ocean of phosphoric light, which is accompanied by a continuous roar of distant thunder. Now liquid fire like molten metal marks the grand outline of tier upon tier of bulging cloud; then out drops a twisted pillar of electric light, setting its base on the horizon; anon a huge fire-ball shoots up, and splitting sends serpent-tongued arms in every direction. Pale phosphorescent light in sheets, north, south, east, and west, scarcely dies out in one quarter before it flashes in another, or simultaneously in two or more. For hours the storm rises thus, over the star-bespangled firmament, on a hot still night. Then suddenly comes a blinding flash, and instantaneously a crash as of the ripping and crumbling of a mountain, a rush of wind, and a down-pour of rain flooding the ground in an instant; again and again follow the flash and the thunder, now rolling into distance. After such a storm the thermometer not unusually drops 30° Fahr. in a few hours, as the wind sweeps over the plain from the snow-peaked southern Andes.

It must not be supposed that these are normal con-

ditions of the atmosphere in these countries, or that we have only the wilderness of space and the war of elements. The lights, shades, and colours on the otherwise uninteresting plain are frequently exquisitely delicate and beautiful, and the sunsets, night after night, are only to be equalled by tropical sunsets seen at sea, where, as in the plain, nothing intervenes to limit or break the lines of gorgeous colour or the flood of tinted light.

Nor is the solitude of the campo absolutely without a charm. A still night under the cloudless vault of heaven, intensely star-studded, without a sound far or near other than the soothing and incessant hum of insect life and the 'hooing' of the little earth owls, is certainly most enjoyable.

The ordinary routine of the shepherd's duties is to take out his flock of a morning, as early as possible in the summer time, while the dew is on the thirsty grasses, and return with them at sundown, taking them to the natural drinking places, when there are any, and in droughts (on those establishments where wells are sunk for the purpose) to drinking troughs supplied by drawing water with what is called a 'manga' (or sleeve), a long canvas bag, with a hoop at the upper end, and a rope at each extremity, so arranged that the 'manga' fills (in part) and comes up doubled until out of the well, when the upper end or mouth is elevated, and the lower drawn out, shooting the water into the trough or drinking pool. The drawing of the water is done by a horse.

In the winter time, and especially while hoar-frosts and cold dews are on the tender grasses, the sheep are not taken to the pasture until the sun is well up and the frost dispelled.

The events of the sheep farmer's year are those of

‘señalando,’ or the marking, the cutting of male lambs, and the shearing.

All the men and women of the district are put in requisition for the shearing, for which they are paid per 100 head the usual price of 40\$, making, with the tying of the fleeces, a cost of about 1\$ or 2d. per sheep.

All districts possess their musical geniuses, ‘paisanos,’ or country folk, who ‘strike the light guitar,’ and sing impromptu ditties. These gentlemen bring their guitars to the shearing, and, the work of the day being ended, a fire is lit in the open, the ‘asado’ is put down to cook, and the ‘ting-ting’ commences ; laughing, chaffing, singing, and dancing are the order of the night, until the fires go out, and the parties stretch themselves out to sleep.

In the majority of flocks, there is no separation of young or old, and the rams run all the year round with the flocks exposed to the same vicissitudes. Lambs may therefore be seen which are the progeny of under-aged half-grown ewes, or of aged and toothless ones ; and though the lambing falls chiefly in the spring and autumn, there are more or less lambs dropped throughout the year : the rams, too, are put into the flocks at, or left in them from, an early age. These various practices are very great stumbling-blocks to the improvement of the sheep, prejudicing the weight of fleece and the soundness of the wool. A marked tendency to delicacy, indeed a positive degeneracy, is the consequence, which a modification of system, practice, and the use of stronger and healthier rams will alone correct.

The true principles of breeding are little known, and less practised. On many establishments of some pretensions a flock of finer sheep is kept at the estancia house for the purpose of furnishing rams to the other flocks. These sheep are of Merino origin, and certainly

are as fine in wool as the average of Spanish Merino fleeces. These, though having a little extra attention, and in some instances sheds for protection, have been treated as breeding flocks in the same way as the others, all ages procreating and lambing, lambing going on at all seasons. These fine-wool flocks have almost everywhere diminished in the weight of wool yielded, in some instances not averaging over  $2\frac{1}{2}$  lbs. per fleece. From such flocks the rams for the cross-bred flocks (Mestiza flocks) have been drawn; hence it is easy to account for the general character and deficiencies of the wools of these countries; and it accounts for the still (compared with other wool-producing countries) small value of the individual sheep.

There are other estancias, on which a much higher class of sheep are bred, for the sale of rams. A considerable number of fine Saxony and Negretti and Rambouillet rams and ewes have been imported, the rams of which in most instances have been put into the Merino flocks with great advantage, though by no means with all the benefits that would have been attained on a better system of management. The practice adopted, as described, with the Merino flocks has been followed with these higher classes in the majority of cases.

There are other establishments again where the pure breed of these imported varieties is maintained, and where there are large, and in some cases, costly sheep-houses and sheds, 'galpones,' and paddocks fenced in. On these 'cabañas,' pure-bred and various grades of crosses are produced for sale of rams,—pure Negretti or Rambouillet, and crosses of the two, as well as crosses of one or the other with the Merino, and with cross-breeds to meet the fancy of the buyers. I do not hesitate to pronounce this intermixture of breeds to be *very bad* practice, tending to obliterate anything like a definite type. The sheep farmers

are inconstant ; one year they will put into their flocks rams of Rambouillet cross, another year they will supplement these with Negretti, and another Electoral Merinos, in the same flock.

It is true that, with the rapid extension of sheep farming, and the comparatively small proportion of high-caste rams at present bred, and owing, moreover to the comparatively recent introduction of the Negretti and Rambouillet breeds, such a state of things was in part inevitable. The rams and ewes imported from Germany and France possess various degrees of merit, and, sold by auction, fetch prices accordingly. Sums ranging from 15*l.* to 150*l.*, even 200*l.*, have been paid for rams.

Some few of the British breeds have been likewise introduced, Leicester, Lincoln, Southdown, and Shropshire-down ; and there are cross-bred flocks from these.

## VI.

### CATTLE.

The great cattle establishments, 'estancias,' as before said, occupy lands for the most part more distant than those devoted to sheep farming in the province of Buenos Ayres ; but there are many estancias within the sheep farming districts still occupied by cattle, or on which both sheep and cattle are bred.

There are many tracts of land on a large estancia, say of ten to twenty-five square leagues, as well as certain districts or lines of country, which are unsuitable for sheep : for instance, low strong land, with rank reedy grasses, often flooded, and on some of which the 'leech' is generated. On such land horses and cattle hold their own.

In the Uruguay and Entre-Rios cattle prevail almost

everywhere, and there are comparatively few estancias whereon sheep alone are reared; but here, as in Buenos Ayres, the sheep are gradually encroaching on to the previously pure cattle lands.

The distribution of a cattle estancia 'plant' is similar to that of a sheep farm:—the estancia house, with horse corrales and cattle corrales, and puestos in different parts of the ground for the herdsmen. Each puestero has his herd (rodeo) of cattle and tract of land appointed to him.

There is a 'capataz' (overlooker) to a certain number of puestos, and a mayordomo, or manager, over all: there are also immense troops of wild mares and horses. A 'rodeo,' or herd, is various in size, consisting of a few hundreds or a few thousands semi-wild cattle. The puestero tends the cattle and keeps them within certain limits, and prevents their mixing with other herds. On some establishments they are brought up to what is called 'el rodeo,' a bare piece of ground near the station or puesto, at sundown, or they are only thus gathered up occasionally. They are settled to rest on the rodeo by 'peones' riding round them; it is from this practice of herding them—'rodeando,' surrounding or riding round—that both the ground and the herd take the name of 'rodeo.'

In these estancias we see the true type of the gaucho of the Pampas—a type now-a-days rarely found in the sheep districts—men familiar only with the plain on which they were born and have lived, without ever having known or seen anything beyond it.

Their faces are blackened by exposure, their long black and matted hair reaching the shoulders and mingling with the beard. They are rarely off horseback. They are dressed in long wide cotton drawers, and a garment

called 'chiripá,' in lieu of trowsers, girdled round the waist with a long woven belt (*faja*), a leather pouch-belt, into which is thrust, across the loins, a long knife, a shirt and poncho, a coloured handkerchief over the head, and felt hat. The skin of a colt's hind legs, freed from the hair, and dried and softened by rubbing, serves for boots, the point of the 'hock' forming the heel, and the big and second toes protruding. They wear huge iron spurs, with rowels three inches in diameter, and have rarely known any other bed than their 'recado' (saddle) stretched on the ground, their 'ponchos,' or cloaks, with the saddle-cloths, forming their covering. Their horse-gear is their sole furniture. The lasso, when not in use, is coiled and fastened behind the recado, and lies over the rump of the horse. With balls ('bolas') for balling wild horses slung in the belts, a powerful bit in the horse's mouth, and hide reins, the man and his outfit are complete. He rarely knows any other food than beef, 'asado,' with or without salt; his luxuries are 'maté,' Paraguay tea, sucked through a tube from a gourd, and cigarettes. Born to the horse, as it were, the gaucho is a splendid horseman, dexterous with the lasso. In full career after a wild bull or cow, he swings the lasso and throws it unerringly over the animal's horns; then on his checking the horse, the lasso, which is fastened to a ring in the broad hide girth of the saddle, 'recado,' is drawn 'taut,' and the animal swung round or thrown.

A single man will thus catch and kill his meat in the plain; the animal being thrown, the trained horse will stand or move onwards in such a way as to keep the lasso tight, and prevent the animal from rising, while the gaucho dismounts, hamstrings, and kills it with his long knife. Swinging the 'balls,' the gaucho will pursue the wild horse, and when within range cast them, striking the

legs or the ground within the horse's stride ; the balls wind round the fleeing animal's hind legs, and cause it to fall. If his horse falls with him, even at full gallop, the gaucho rarely comes to grief, for loosing his knee hold, he is impelled forward on his legs, and catches his horse before he is up.

As an instance of the extraordinary sagacity and cleverness of a horse perfectly trained to work among cattle, I will relate an encounter which took place on the town killing-grounds, at the southern extremity of the city of Buenos Ayres, and witnessed by my son. An unusually large and powerful bull was loosed from one of the corrales ; he was approached in the usual way by the lasso-men, whom he charged, freeing himself from the lassos ; he became infuriated, and charged and charged again with such velocity that none of them could succeed in throwing him ; he unhorsed two of the men, disembowelling one of the horses, and injuring the rider ; he gored another horse in the leg, and finally beat his antagonists out of the ground. There was a moment of suspense, for none seemed willing to try their chances against him, when from the far side of the killing-ground an old man was seen to approach cautiously on a somewhat lean and ancient-looking roan horse. A cry was raised by the beaten lasso-men to warn the old man, and induce him to return and avoid what appeared to be certain death ; but the old man heeded not, and availing himself of the diversion of the bull's attention to the cries in the front, ran his horse, breast on, against the infuriated animal's flanks, which staggered and then instantly charged. The old man dexterously avoided the onslaught, cast his lasso over the horns, and, at the same moment, drew a rug (pellon) from off his saddle (' *recado* '), shook it in front of the bull, and threw it forward. At the same

instant he slipped from his saddle unperceived by the beast, whose attention was drawn off by the rug, and away went the horse, the bull charging him. The horse, having no weight on his back, headed and turned with great rapidity, got a strain on the lasso, and continued to 'work' the bull until he finally threw him, and then keeping the lasso 'taut,' moving with every struggle of the bellowing animal, prevented him from rising, till the old man approached on foot and gave him the *coup de grâce*.

The 'events' in cattle estancia life are those of the 'branding the young cattle' with the owner's 'mark,' cutting the young bulls, and parting out cattle sold for the markets or 'Saladeros.'

The marking or branding is a great time. The mayor-domos and capatazes of the neighbouring estancias have notice to attend, if they wish, so as to part out the cattle of their employers' brands if any should have strayed or become mixed. The 'peones' of the estancia are mounted on their cleverest horses; the cattle are driven into the estancia corrales, and a large fire, wherein to heat the brands, is made of cattle bones outside the corral. Girths and saddles are looked to, and rearranged, if not quite in order, this being a matter of the greatest importance, as on the girth (cincha) and recado the whole strain of the work falls. Lassos are buckled on and held in coils in the hand. The group is picturesque, with the cattle in the corrales, the large fires outside, the dense smoke curling and rolling along the plain, the groups of boys and men at the fires, the 'stokers' and the brandsmen half enveloped in the smoke, and on the alert to climb the posts of the corrales in case of danger. In addition to these may be seen twenty-five or thirty horsemen, freed from all superfluous garments, with coloured handkerchiefs tied tight round the head, many and bright-

coloured shirts, 'chiripas,' of all colours, scarlet, drab and scarlet, blue, green, and white, while mayordomos and capatazes look on, distinguished by their gay horse trapings and their huge silver spurs.

When the work is begun, the animals are drawn out of the corral as required, the lassos are cast over the horns and round the hind legs, and the young bull is thrown to the ground and kept stretched, so as to be unable to rise. One of the brandsmen darts from the fires, steadies himself by placing one foot on the prostrate animal, and plants the brand. The castrators perform their operation. The lassos are slackened and cast off, the animal rises; some trot quietly off, downcast and surly; others glare round and charge the nearest man, horse, or group, furiously. Away gallop the horsemen, with loud wild shouts and laughter,—the pursued to escape, others to draw off the maddened animal from those that are hard pressed, edging him away farther into the open, where he is left. The day winds up with the 'asado' (roast) in the usual way, and the men 'yarn' over the feats of the day, as hunting men are wont to do, of the 'run' and its incidents. The guitar and the ditty are, as usual, in requisition, and the younger men frolic and spar with their knives.

The parting out of cattle sold for the 'Saladeros' is another busy time. A certain number, hundreds or thousands, are sold, of a specified age and condition. The purchaser picks from the herds such as correspond with the definition in the contract; these are parted out from the herd, and for this purpose trained oxen, termed 'sinualeros' or decoys, are placed at a certain distance. The selected animals are parted out and chased by the peones until they join the group of sinualeros; when the number is complete they are driven off for their

destination. The 'tropas' (droves) are accompanied by a chief drover and peones, corresponding to the number of head of cattle, usually one man to every hundred head. They travel with their change horses ('tropilla'), headed by a mare with a bell, which go in front of the cattle. Behind these, driving them, and keeping the cattle from rushing forward, rides one or more peones; others are on the flanks of and behind the 'tropa.' At night time the cattle are stopped, and the peones ride round them until they settle and lie down. Horses are picketed, fires lit of thistles, bones, or what can be picked up, and the 'asado' put down to roast, an animal having been killed to furnish it.

There are other 'events' than those of routine in the cattle estanciero's life—events rather of the past than the present, or only occurring now-a-days in particular districts, viz. the gathering of wild cattle to be gradually reduced to the semi-wild, and confined (aque-renciado) to particular or determined tracts of grazing ground.

In the province of Buenos Ayres this work is now very rare, or, at most, it is of a modified form. In the interior of the Banda Oriental, in Entre-Ríos, and in Corrientes, there is still something to be done in this way on the vast estancias of a dozen or twenty leagues in extent, which in a certain sense have still to be reclaimed from the wilds. It is not very long since a friend of mine, who has a magnificent estancia on the Rio Negro, in the Banda Oriental,—over which, as the crow flies, one can ride thirty miles, the camps 'broken,' that is, diversified with wood, water, hill and dale—a charming wilderness, where cattle perfectly wild roamed at will—had a gathering of this kind, from which I take my data.

The business is undertaken by a sort of gaucho chief,

or captain, who gets a price per head brought in and located. He engages his band, over whom he rules with an iron hand—I might say a ‘hand of steel,’ for the ‘cold steel’ would not be wanting on occasion. He knows every foot of ground in the Republic, and rarely knows other canopy than that of the heavens.

In the present instance he has undertaken a large gathering, and his band is over eighty to a hundred men. To his lieutenants he gives his orders, stationing them at different points, from which, at an appointed time, like ‘army corps,’ they manœuvre, driving the cattle through wood, over hill, and across streams, towards the rendezvous. More than one thousand head, gathering now from different points, draw near to the rendezvous, thence to be directed to a ‘rincon’—a tongue of land, narrow at the entrance, and surrounded, except at this entrance, by a deep and wood-fringed river.

The critical moment has arrived. The captain of the band has taken his station on elevated ground, flag in hand, with which he makes his signals; the men move silently, obeying the signals,—‘Close in on the right’—‘Stand in the centre’—‘Retire on the left:’ bellowing, lowing herds—the deep low tones of venerable and stately bulls rolling through the still air—like skirmishers, issue from the woods or pour over the hills; slowly they come at first, then break into a trot. ‘Stand to the right.’ A point (of cattle) too quickly comes. ‘Stand’—‘Stand all’—they slack their pace and break up into knots; strange bulls bellow at other strange bulls, trot forward, or with nose to ground tear up with their hoofs the firm earth. Ten days the band has worked. From all points the cattle come; and now one instant, one false manœuvre, and the work is lost; for the cattle will charge away, a stampede of more than a thousand head of mighty horned brutes

crashing through every obstacle—Ha! the flag is waved from right and left to centre, lashing the air in quick successive flouts—reinforcements for the centre; the cattle break; yes! no! the practised eye of the captain detects every indication of movement in the ‘mob.’—‘Steady!’—the flag but flouts the breeze as held aloft—the manœuvring towards the centre has checked the threatened ‘break’—and now ‘Push on’—‘Close in’—‘Close in all.’ They (the cattle) head for the ‘rincon’—‘Hurrah!’ My friend Don Juan sits on his horse apart from the workers, eagerly watching them. There has been an animal or two left in the wood—a faithful and practised ‘peon’ is close at hand—suddenly he cries ‘Cuidado, patron!’ (Look out, master!) in a quick, ringing tone; an infuriated animal is close upon Don Juan, who instantly spurs his horse, which has scarcely sprung into the gallop before the bull is upon him; and man and horse go down. Fortunately the well-trained horse has ‘dodged’ the horns, and the shoulder of the brute has struck his quarters; the peon is upon the beast, and pressing close, with loud shouts, lasso whirling, and horse at speed, so that the brute cannot turn to gore the fallen, runs him far, and forcing him into a wood, leaves him beyond the power of mischief. Don Juan is up and in the saddle again, shaken, but uninjured. Look! look! the wary captain gesticulates, beating the air with his bright-coloured flag. ‘Hold hard!’—‘Check!’ to the left; ‘Stand!’ to the right and centre. Now, now! they enter the neck of the ‘rincon’!—on, on! silence is no longer kept—wild whoops—whirling lassos, a ‘tearing’ gallop! charge, charge on the rear—charge the close phalanx now—more than one thousand head, a forest of horned crested brutes, heading all for the goal—a hundred voices ring through wood and vale, and over plain and hill, and the wild, sharp cries of the gaucho

band are heard above the rolling thunder of many thousand hoofs trampling the trembling earth: 'Hurrah! dismount—slack the girths of the panting steeds—light fires along the line—guard the neck of the rincon!' The cattle break up and spread themselves, restless or furious but without cohesion—they are safe—a couple or three of the brutes are lassoed, killed, and soon are seething masses—supper for the hungry gaucho band.

The cattle are long-horned, ranging generally from small to medium size, and of varied quality, according to the locality and nature of the pasturage on which they are reared and bred. In some 'partidos' (districts), owing to the nature of the pasture, the cattle vary, yielding larger carcase and heavier hide, lighter hide and more grease, and being of smaller or larger size. On some of the Banda Oriental campos, and in parts of Entre-Ríos, they are fully as large as those of Buenos Ayres, and the hides exported are heavier, partly, it is true, because the bullocks, or neats, are as a rule killed when somewhat older, but in part from the stronger nature of the pasture, the greater shelter of trees,—or from other causes. The oxen, when fully matured (five or six years of age), are powerful and weighty, carrying enormous horns, and make very good draught animals. Except on the lines of railways, nearly all the transport of goods and produce from and to the country is effected in large, ungainly carts, with huge, hard wood, and untired wheels, to which six oxen are yoked by the horns. The cows are but scanty milkers as a rule; there are, however, some marked exceptions.

The dairies for supplying the town with milk are of the most primitive fashion, consisting of a hut and a corral, a greater or less number of cows, and a tract of campo to graze them on. The cows are milked once in twenty-four

hours—at dawn of day—and the milk at once transferred to a number of small, round tin cans, which fit into hide-lashings on each side of the saddle, or pad, of the milk-man's horse, on which he mounts half-sitting, half-kneeling, and trots off to the city to supply his customers. The calves are allowed to run with the cows during the day, but parted from them and shut up in the pen or corral in the evening, the cows being left at liberty to graze. In a few better regulated establishments good cross-bred (shorthorn cross) cows are kept, a little lucerne soiling and hay being supplied to them when grass is scanty; and in some of these are milk-rooms, or dairies. Excellent butter is made in such establishments, which commands a high price, especially in the winter time. In the spring, when milk is abundant, some of the milkmen make an inferior kind of cheese, and also butter.

During the past dozen years, many English-bred cattle have been imported for the purpose of crossing with and improving the native breed. The majority of those imported, both bulls and cows, have been of the shorthorn variety.

The value and importance of this movement can hardly be over-estimated. Nevertheless, it has not found general favour, as few have hitherto derived that direct pecuniary benefit which is needful to give it wide-spread acceptance.

To understand this, we must take into consideration the uses to which most of the cattle of the country are put, and from which they take their value, together with the position and management of the cattle establishments.

The chief value of our cattle at present is in the hide; and secondly, in the tallow and grease. The cross of the

shorthorn does not, to any very great extent, raise the weight of the hide, and in this particular, apparently, does not augment the value of the cattle in a degree commensurate with the cost of introducing high blood into the herds. The introduction of these higher class animals, whose good qualities have been perfected under domestication, high breeding, selection, and feeding among the semi-wild herds of the plain, where, subjected to similar treatment and obliged to seek their food as best they can, they are exposed to all the vicissitudes to which the common herds are, as it were, born, is not likely to lead to immediate appreciable advantage in any other respect. Acquiring thus the habits of the half-wild cattle of the country, the cross-breeds, after a few generations, where cross-bred bulls only are used, make little more fat and not much more beef than the common stock. The often precarious and unequal feeding or pasture, the long driving of the animals to the slaughter, unfit the cattle for any purpose beyond the common one of hide-salting and steaming for grease. Ninety-nine out of a hundred of the estancieros know no other use for their cattle, and have no conception of any other principle of breeding than that of a state of nature; and *immediate* and *palpable* benefit alone would induce them to step out of the accustomed course, and in many cases not even this would induce them to take the trouble. It is not likely, therefore, that cattle-refining will, for some time to come, attain any wide-spread development. The spirited pioneers of the attempt find themselves without the support which they anticipated; they find no sufficient sale for the bulls which they breed, so that the improvement is limited to their own herds. On these establishments the ultimate result cannot be doubtful, as the principle of greater domestication is applied, and the best

pasture lands are dedicated to the cross-bred herds. The tolerably even growth of the young animals is thus secured, and the breeding stock not allowed to fall into absolute low condition. A decidedly improved stock will, therefore, be created on these estancias, and at no very distant day their superior qualities as beef-makers and fat-producers will be recognised, and a profitable use will be found for them. The cities and large towns cannot long continue indifferent to the existence in their vicinity of animals that will yield a superior meat, in much larger proportion per head, under a system of at least 'half-fatting,' and the call from Europe for meat supplies must sooner or later induce the possessors of well-bred herds to take steps to put their neats (steers) into a condition that will give beef of a quality more or less 'up to the mark' of European requirements. The problem of ways and means of putting cattle into at least a fair condition has yet to be solved. As it is totally new ground, men hesitate to take the initiative. The growing necessity, however, must compel it, and a company of breeders and others might very well make the venture; they could do so with small individual risk, and with every prospect of a highly satisfactory result.

Such an initiatory and experimental undertaking must necessarily be placed under the direction of men who have a good practical and theoretical knowledge of cattle-feeding, and also of the country, its climate, products, and agricultural capabilities, together with perseverance and zeal.

The locality should be well chosen, and within easy reach of the city. The cattle with which the experiment is to be made should be domesticated, well-formed cross-breeds, calculated to lay on flesh of a superior veined quality on moderate feed. The system probably

most feasible would be one of a combination of yard and paddock (potrero) feeding: to maintain which a succession of forage crops would have to be grown. It is noticeable that the cattle of the country, even when on the best pastures, do not vein the meat with fat, and the flesh is thus wanting in flavour, richness, and delicacy, and they are comparatively unprofitable feeding for beef.

The unchecked development of young stock, the produce of crosses of shorthorned and Hereford bulls with selected native cows, when somewhat extra care is taken to secure the even growth, is, as I have seen and proved, highly satisfactory, especially in the second and more advanced crosses. Exceedingly neat, level, and square animals are produced of fair size and 'good hair,' manifesting really good fatting and beef-making qualities; so much so, that on the same feed they will make nearly double the beef and fat that can be obtained from the native breed: they also furnish excellent milking cows, when this object has been sought after. I have cows of this class which give me, in the height of their milk, as much as sixteen and eighteen quarts per day.

The power of transmitting type and colour resident in pure-bred ('Herd Book') bulls is manifest in a high degree in the crosses with the cows of the country. All the established and accredited colours of the shorthorn, from pure white through all the grades of roan to red, prevail in a carefully managed shorthorn cross herd; and I have seen a herd, the only one that I know of in the country, the produce of three Hereford bulls (of Mr. Naylor's stock) and cows of this country, in which every animal got by these bulls, from the first cross upwards, was 'true' in colour, and possessed, in a marked degree, the form and features characteristic of the Hereford blood. There were,

by the way, four young animals which formed a singular exception, but an exception which proved the rule ; they were the produce of two calvings of two black cows, which by accident got into the herd, and were allowed to remain in it. These young cattle had the 'white' markings of the Herefords well and truly defined, as also the form and features ; the one exception was in the 'colour,' which was black instead of red.

It must appear strange, indeed, to those who know the value of the shorthorn and Hereford blood, to learn that the owners of very valuable stock of these breeds are compelled to 'cut' the whole of the young bulls which they do not require for their own herds, in every grade of cross—first,\* second, third, and fourth.

I know several gentlemen who, like the owners of the well-bred cattle already noticed, have very fine herds, and yet have not sold a single bull out of them. The loss sustained by the country at large from the 'cutting' of these young bulls is, unquestionably, very great. These bulls put into the more domesticated herds and into dairy kinds would, in a brief time, materially improve such stock, and furnish animals admirably adapted for the meat supply of the city, as being profitable to feed, and as making, with equal food, much deeper and more meat than the 'habit' of the indigenous cattle admits of.

\* Little progress would be made by the use of half-bred (first cross) bulls : it would be from the after crosses that useful reproducers would be derived. The half-breds, however, as steers under a fair régime would be very profitable to kill.

## VII.

## THE HORSE OF THE PAMPAS.

The horse of the Pampas is an animal not unworthy of remark. Descended from the Spanish barb, probably with a cross of other Spanish horses of undetermined pedigrees, introduced by the colonists, it has multiplied on the prairies of the Rio de la Plata in an extraordinary degree and in a more or less wild state. Immense troops of wild mares and their progeny everywhere exist, though of late years considerably reduced in number by their wholesale slaughter for the hides and grease. In the killing season several thousands are daily slaughtered: for this purpose they are worth about 25s. each. On the estancias numerous 'manadas' are formed by accident or intention, composed of mares and their progeny of all ages, kept together by the stallions, which jealously guard them. As in the case of cattle, once a year they are 'corralled' with the object of marking (branding) the young stock and cutting the young horses; the mares are also sometimes lassoed and thrown, and their manes and tails cut for the hair, which constitutes no inconsiderable article of export. The mode of throwing them is this:—One lasso-man, mounted or on foot, as the animals gallop round the corral (staked enclosure) driven by the whirling of the lasso, throws the noose over the head of one in the group; then allowing it to settle on the neck, and holding it, if on foot, with his hands about a yard apart, he brings the right hand back on to his right hip, and the left he places on the outer side of the left thigh, stretching forward the right leg and bending the left knee, and planting his feet firm set on

the ground : a powerful strain is put on the lasso by the galloping animal, frequently drawing the man sliding over the surface. When on other occasions a horseman throws the lasso, it is fastened to the ' *recado* ' in the usual way. A second lasso-man awaits the cutting off of the mare or colt from the group ; and as she gallops in a circle under the strain of the neck lasso, he casts the noose on the ground in front of the animal in such a manner that the outer portion of the loop rebounds, and as the animal plants its fore feet into it, gives it a pull upwards and closes it on to the two fore legs—an operation called ' *piclando* '—and so tripping it up, brings it heavily to the ground, while another gaucho, catching the fallen animal by the mane, plants his knee on the head. The man who has the animal by the fore legs now moves rapidly, keeping ' taut ' the lasso, and catching it round the pasterns of the hind leg or legs, draws them up to the fore legs and makes fast : whatever operation has to be performed is then effected. If it is a colt or horse that has to be broken in, a halter is put on, and the animal tied up to a stake of the *palenque*—a row of stakes for the purpose—that he may ' dull away,' as the gaucho says, ' to soften his neck ; ' his legs are then tied, the saddle (*recado*) being put on with the bridle, which consists of a strip of hide tied round the under jaw behind the nippers, and the reins buckled to it. The ' *domador*, ' or horsebreaker, then mounts. When he is seated firmly in the saddle, the thongs are slipped from the horse's legs, who either sulks for a while or immediately bounds forward, plunging and bucking violently, but only in rare instances succeeding in unhorsing the rider. He finally breaks into a gallop, and another horseman places himself alongside of him in close contact on the side to which he inclines, and by main force—the weight of his own horse—keeps the unbroken

one heading the way he is required to go. In about half an hour the colt or horse (they are often from seven to ten years old before they are caught for breaking) is brought back pretty well tired and conquered. A repetition of this process for a few days renders the animal more or less serviceable. The 'bitting' and 'breaking to paces' is an afterpart of his education. Many are lamed in the shoulder and their necks or legs are sometimes broken by the fall in catching. The manœuvres of the stallions in keeping the mares together or collecting the strong ones of their 'manadas' are interesting. Neighing, the stallion gallops round and through them, sometimes with crested neck, at others with neck and head outstretched, and ears back, 'menacing' or biting the mares to drive them to the group; or missing one or more, he dashes off in search, neighing the while, and from time to time coming to a sudden halt to listen for reply. If the missing mare has got into the 'manada' of another stallion, he dashes in, singles her out, and chases her back to his own. The stallions often rob mares from one another, and fight for the prize. The young stallions form their 'manadas' by stealing away mares from the older horses. Mares are rarely ridden, and any one mounted on a mare out in the campo would be exposed to the jeers of any gauchos who encountered him. This of course arises from the fact of the equine kind always running loose, so that the mares are nearly always in foal or suckling young foals. Tamed horses (geldings) are separated from the manadas and formed into 'tropillos,' as they are called, and follow a mare which carries a bell round her neck. In moving from place to place (travelling) the mare and her 'tropilla' are driven forward. When a change of horses is required, the mare, which is generally trained to allow herself to

be caught by hand, has the hobbles put on, and the horses gathering around her, are easily caught with the lasso or by hand.

The horses are of every variety of colour, as may be supposed from the mode of breeding. Many are most singularly marked, and anything very peculiar in colour markings is esteemed. I have seen a horse dark brown, almost black, from the girth forward, as if drawn by a line, and from the girth back perfectly white. It is not uncommon to see horses with crisp curled hair all over, something like the 'wool' of a negro's head : occasionally whole manadas are filled with such horses. I should suppose that it was one of this singular race that Barnum exhibited in the 'States.' These horses have scarcely any mane, and little or no hair on the tail. I have not been able to ascertain the origin of this peculiarity in horse-flesh. The horses of the country, taken on the average, are well-formed, short-legged animals, of good bone, round quarters, and full tails; deep chests, having a tendency to be a little heavy; and straight in the shoulder; arched neck, somewhat short and thick at its junction with the shoulder, as is to be looked for from their general configuration. Heads in every variety, neat or large; straight nosed and round nosed; straight back and long barrel; short strong pasterns. Their pace is a canter, and particularly easy, from the action being a little round and short. They trot fairly when taught and in harness. They stand from 14 hands 1 inch to 15 hands: some reach 15 and an inch, or even 15-2, but such instances are rare. These horses have carried me well to hounds over the plain, hunting the deer with a small pack which I had in my young days composed of drafts from the Cheshire and North Country packs of fox-hounds. I have trained them to fence fairly, and on

more than one occasion have taken part in hurdle races, in which the horses performed creditably. I have run down the emu on them. They are ridden with a very severe bit and rein perfectly by the neck, turning rapidly in the gallop. They can be brought up on their haunches from full speed, and turned round almost in their own length. This training is necessary, as they work amongst wild cattle. The short strong pastern is esteemed as involving less liability to lameness in such work.

They have wonderful endurance. The country horses are simply grass fed, and are never shod. When the day's work is over and the saddles are taken off, they are turned loose in the plain, and immediately join the rest of the 'tropilla' in their accustomed feeding ground. They have an extraordinary attachment to the place of their birth (*querencia*), to which they will return almost as the crow flies from long distances. As soon as they are turned loose, they will throw up their heads, look around, sniff the air, and then bound away in the direction of their *querencia*.

Horses have thus been known to return distances of 90 leagues in four days. It is not unusual for one of the grass-fed horses to carry his rider 30 leagues in a day, starting at dawn. In the usual mode of travelling a mare heads the 'tropilla' with a bell, some twelve or fifteen horses following the 'madrina' (mother mare), driven by a couple of peons and carrying 'maletas' (saddle bags). The traveller, changing horses every five leagues or so, can make his thirty-five to forty leagues a day—an exhilarating gallop, and particularly attractive in the early morning, through the dew-bespangled grass, festooned with firm spider web, moist with dew, and glittering in the rays of the rising sun. In this way I have ridden twenty leagues of a morning, breakfasting

at 9 o'clock with a friend, after an appetising gallop of sixty miles.

When the horses are fat with the succulent grasses of the early summer, it is necessary to be very careful with them. In the heat of the day a hard gallop in the sun will kill them : the fat becomes soft, and in effect melts. In the winter season they frequently become excessively lean and weak from the scantiness of the grass, its cold and watery stage of organism also superinducing scour.

The mares of the country are well calculated for crossing with the European stallions. The thorough-bred stallion gets exceedingly nice stock out of the well-chosen mares (provided the young stock are insured even growth by proper feeding), giving greater size and speed, better style, and more elastic paces. In the second cross the stock is everything that could be desired. I have bred from two sires : one a son of Harkaway, out of Fanny Kemble's dam (Elcho); the other, which I now have (Buckhunter), by Fallow-buck (by Venison), out of own sister to Coronation ; and in the second cross both horses have got stock little short of thorough-breds in every point. The Cleveland Bay gets excellent carriage and saddle horses out of the mares of the country : some of the progeny of this cross are a trifle loose in form, as is to be expected from the disparity of size ; but the half-bred mares of this cross put to powerful blood horses will, I feel assured, throw very superior stock for general purposes. A friend and neighbour is now putting a son of West Australian (Antipodes) to his half Cleveland mare. There are also several dray stallions which get powerful horses excellent for rough draught work. When the disparity is so great as between a great 16½ or 17-hand dray horse with his huge hoofs and the neat 14½-hand mares of the country, we can scarcely expect

that the progeny should be level: the neatness of the mare, however, frequently prevails, and the result is then very satisfactory—so much so as to throw handsome horses for carriage purposes.

We labour here under great disadvantages in breeding fine horse stock, owing to the habitual carelessness of the people in respect to horses, which live or die according to the season. All are horsemen, but no one is a groom; and it is most difficult to get either young stock or made horses properly attended to. Then again the horses of the country are of such comparatively small money value, owing to their great number, that the prices required to cover cost of breeding, rearing, breaking, and turning out made horses, fed and cared for as they should be to give them the full development, &c., are not freely paid. It is therefore not yet a paying ‘business,’ the majority of the breeders of improved stock being the landed gentry (*estancieros*), who breed for their own pleasure and to improve their general stock, from which ultimately profit will be obtained, not by the sale of a few colts or horses at prices which would remunerate special care, but in the sale of hundreds at a future date at prices a few pounds each beyond those of horses of the country breed. These *estancieros*, having thousands of mares on the establishments, might, and in a few cases do, put the cross-bred stallions into their ‘manadas,’ and in this way it would pay them well if they got some 2*l.*, 3*l.*, or 4*l.* more apiece for their unbroken stock—the pasturage on a cattle *estancia* being merely nominal for the horses, as we can readily understand from the fact that it is a fair business to an *estanciero* to sell his three-year-old ‘neat’ cattle and cows at 30*s.* to 2*l.* each by the thousand. A few pairs of cross-bred carriage horses have recently been sold at 100*l.* the pair, and a few half-bred blood stock for saddle or

racing purposes at prices equal to 50*l.* to 60*l.* each. Trained and fed horses for saddle or carriage are annually rising in value: they are to-day worth ten times what twenty years ago was considered a high price, and I have no question that many sires will be purchased for these countries in the English markets: indeed, ten or twelve have been imported during the past year. There is not such a thing as a regular veterinary surgeon in the city of Buenos Ayres, which has 200,000 inhabitants and swarms with horses. There may be one or two men who profess to be horse doctors—that is, who can rub in a blister or give a ball. I believe a clever, active young ‘vet.’ or two, who has had some practice as well as passed the College, would find an excellent opening here, if he combined the profession with a well-conducted livery stable. A few score of sober, trustworthy grooms would also find immediate employment at first-rate wages.

## VIII.

### SPORTS ON HORSEBACK.

In a land of horsemen, sports and games on horseback will prevail. Horse-racing is an institution of the people of the La Plata States, from the peon who matches one of his horses (and all have several) against a comrade's for 10*p.* (1*s.* 6*d.*) to the estanciero or aficionado racing man and trainer, who will match his favourite for two or three hundred pounds. Racing, like all other things in the country, has undergone its changes—at least among certain classes; and near to the chief cities there are circular race-courses, grand stands, and all the paraphernalia of British innovation; but in the campo the old style prevails.

The horses are ridden bareback ; the distances various, short ones prevailing—300 to 600 or 800 yards. Two horses of renown are matched to run, say 600 or 800 yards, ‘ *estilo de plaisir* ’ (custom of the country). From far and near men of all grades assemble ; the justice of the peace, who holds the ‘ articles ’ of the match, presides as umpire, surrounded by chiefs and generals, *estancieros*, squatters, and gaucho peons, to the number of several hundred horsemen. There are caparisoned steeds, sleek and fat, with holiday trappings, silver headstalls, silver chain, or silver-mounted reins of finely plaited hide, silver-mounted ‘ *recados* ’ (native saddles), silver embossed stirrups, and silk embroidered saddle-cloths. Of the riders, some have costly ponchos, silver-ringed ‘ *ribinques* ’ (flat-lashed whip) of finely plaited hide, and huge silver spurs—beau-ideals of *estancieros* of the olden time, while the gaucho *haragan* (roving gaucho) may be seen on his ‘ *caballo flaco* ’ (lean horse), with seedy ‘ *recado*,’ rawhide reins, and huge iron spurs of two to three inch rowels. Many bring their ‘ *parejeros* ’ (race-horses) for the chance of ‘ matches,’ many of which are made during the day. The horses of the great race appear on the ground, led by their trainers and having on their muzzles. The would-be critics of the crowd comment upon the condition of their favourites. The ground is measured out. Some of the most interested in the race and the betting dismount, spread their saddle-cloths and ponchos on the ground, near to the starting-post, and recline thereon. Weights having been adjusted, the order to mount is given. The riders, stripped to the shirt and barefooted (boots are not permitted, lest ‘ *undue* ’ advantage should be taken of heel and toe), having a handkerchief tied closely round the head, swing themselves lightly into their seats. The two horses are brought together and stand

side by side ; they are then walked forward a few paces and stand again, both riders and horses cycling each other with the greatest keenness. This process is continued for more or less time, the 'partidos' increasing in length, and the speed gradually warming up the horses. They start now from the post at a bound—the two horses, with pricked ears and dilated eyes and nostrils, leaning against each other—and are pulled up within their own length after going thirty, forty, or fifty yards ; this is continued, increasing the distances of the 'starts' or 'partidos,' until both riders consent to 'go ;' they challenge each other and tempt each other on, as they find their horses going,—'Vamos! vamos!' (Let us go!); but it is no start until both riders say 'Vamanos' (We *will* go), and both strike their horses. This they will not do until they come to think that each has somewhat 'cut down' his antagonist, or that their horses have got into their best strides and are exactly abreast. Meanwhile betting goes on—horsemen thread their way among the crowd, holding up their money—10\$ on the bay, 50\$ on the brown, or it may be 1000 fr. or 5000 fr., or a 'point' of cattle, 50 or 500—or carts and oxen—silver spurs and stirrups, the 'recado,' or the horse itself on which the gaucho rides, being wagered on the issue.

The cry is that they 'go,' and the crowd moves on towards the winning-post, where the justice of the peace (or an appointed judge) takes his stand. Offers to bet are now heard everywhere among the crowd of horsemen, and the 'money covered'—for this is the moment when the real 'business' is done. They are off! We hear the sound of the 'ribinques' as both strike their horses, as on they come, nose and nose, stride for stride, pressing against and trying to force each other off the course, while the riders strive to get their legs each in front of the other's, or

the heel in the chest of his antagonist's horse. Thwack, thwack, thwack—the smack of the flat, raw hide thong of the ribinques falling fast on the quarters of the horses—nose and nose they come ; but lo ! one suddenly 'shuts up,' drops back, and the other comes on with a lead of half a length to a length, passes the winning-post, pulls up, and dismounts from the panting animal. Then there is a regular Babel. The loser also dismounts, walking crest-fallen : he has been over-matched this time—his antagonist has been the more dexterous, and planted a well-directed 'kick' just behind the elbow-joint and over the region of the heart—the cause of the sudden 'failing' of his horse in the race :—'Estilo del pais !' custom of the country ! ! which admits of that sort of thing except when special provisions are made against it in the articles or contract, which special clauses have been much more general since the 'English races' have become an institution. Now come many matches, and sweepstakes, for 10\$, 20\$, 50\$, or 500\$. When these are over, the crowd break up and scatter over the plain, racing, shouting, 'pechando' (running the horses breast on against each other), bounding away at speed, and pulling up and turning in a space little exceeding what could be covered with a hide, &c.—equestrian frolic in all forms.

If it be a festive day as well as a match of racing, the 'sortija' attracts, and the gay young 'estancieros' or the gauchos tilt for prizes at the ring. A decorated arch is fixed up, from the centre of which a ring is hung—if for the young gentry a gold one, for the 'paisanos' a silver or brass one, the size of a finger-ring. The horsemen have short sticks (about twelve inches) decorated with gay ribbons. At each end of the tilting-ground—the arch being in the centre—are ranged the players. A signal is given, and at a bound in full career dashes forth a horse-

man, straight for the arch—his right arm raised, and the stick directed towards the ring—click—he touches the edge, but takes it not—he reaches the opposite barrier, pulls up his horse on his haunches and brings him sharp round in the space of a hide—then out darts another and another—‘Viva!’—this time the stick is held aloft; it has been inserted in the ring, which is brought away on the stick. The successful tilter curvets and caracoles his horse, bounds and pulls up, and bounds again; and if there are ladies present, brings him sharp up within a foot of some favoured dame, before whom, bowing, he lowers his stick (perhaps decorated by the fair one), from which she takes the ring. Instantaneously the horse is wheeled and curveted into the ranks again, and so the game goes on. I have enjoyed many an hour at this exciting game on a high-mettled and well-trained horse. At a little distance smoke is wreathing over the plain, and mounting towards the azure-vaulted firmament: thither let us go; we find several gaucho peons, with charred sticks in their hands, pushing red embers together, and a savoury odour salutes us. Over the red embers a dark mass is partly suspended and partly rests: it is a ‘vaquellona’—a young cow roasted in the hide. Silver-mounted knives are drawn from silver or silver-mounted sheaths, thrust in silken sashes and embroidered belts, and seething pieces are cut from the roasting mass, of which all partake. The sward is smooth, and spirits high: bright eyes and strains of lively music lure us to trip the ‘light fantastic toe’—hurrah! for the days of yore!—‘asi somos todos.’

## PART II.

## SHEEP-FARMING.



## I.

IN considering the adaptability of this country and climate to the various pursuits which constitute its national wealth, and the advance made in them respectively, we cannot fail to be struck with the predominance which sheep-farming is assuming. At the same time we cannot fail to note the very low standing of its products, as compared with those of other countries (many of them, if not all, much less favoured in soil and climate) in the markets of Europe.

It is imperative for the future prosperity of this important interest, that some well-defined principles should be laid down, and some sound and sure method adopted, to save us from further decline, and, as far as possible, to raise the standard of our products. To this end we must consider the source—the original stock—from which our flocks have been derived, the course of refining adopted, and the class of animals with which the crosses have been effected ; we must ascertain the manner in which the flocks have been treated, and examine into the breeds, crosses, and practice of other countries resembling this in climate, comparing the results in the different countries. We must further enquire into the proposed and actual practice of these things, at the present day, as bearing upon the wants of the great markets.

The original stock from which, with few exceptions, our flocks have proceeded, was the Creole sheep ; a leggy, small-carcased animal, with an open fleece, small and of light weight, coarse and without elasticity ; possessing, in fact, no qualification to recommend it as a basis to breed from. The exception is that of the Pampa sheep, which is an animal much superior to the Creole in all points for the breeder's purpose. So small, however, is the proportion of the Pampa blood in our general flocks, that it is scarcely to be considered as an element ; but wherever that blood has been adopted as the basis, and its influence not obliterated by subsequent intermixture with sheep of the Creole origin or through careless breeding, a marked superiority in weight of fleece and length of staple is observable ; and the breed itself will doubtless prove a very important element in the formation of valuable races from crosses with improved long lustrous-woollen varieties.

According to the most reliable data, confirmed by the similarity of type, the so-called Pampa sheep are derived from the well-known Spanish breed the 'Churra,' a long-woollen race which the Spanish colonists introduced to different parts of South America. Varieties of this breed, modified by local influences, are found in the Pampas, Patagonia, on the hill-ranges and slopes of Cordova, Santiago de Estero, Tucuman, Salto, and other parts east and west of the Cordilleras. Their configuration is goat-like, and nearly resembling that of the Angora : they are somewhat tall, light-boned, light-carcased animals, swift of foot and bright eyed ; the males have long upstanding horns, which are sometimes fantastically set, and not always limited to a pair. I have seen some with three—a long straight one in the centre, like a unicorn's—and many with four. The wool is long and straight, and in

the localities most suitable for its growth has considerable brightness.

The origin of the Creole sheep is not so clearly traceable, but it is known or believed to result from the interior Spanish breeds of short staple. The wool is harsh, and without brightness, and of coarse medium quality or staple ; the animal leggy, carcase small, and meat inferior. It is not improbable that the Creole is the result of intermingling of races (possibly of the lower type 'Merino' with varieties of the 'Vasto') and of the utter neglect under which it has here degenerated to the low conditions of wild races.

The choice of the breed with which to refine our Creole flocks very naturally fell on the Merino, through which so general an improvement has been obtained in almost every country, in point of fineness, and with various results in other points, according to the basis employed and the influence of soil and climate.

The prevailing idea, comparatively but a few years back, was fineness of staple, irrespective of length,\* and this was sought to be grafted on sheep of all kinds. With some it has been a success ; in other cases it has been abandoned, and breeds adopted more suited to the necessities of climate and general requirements. The Merino itself has been modified and improved in different countries under different treatment and special selection. The Saxon, Merino, Negretti, and Silesian are far superior to the original Spanish breed. The French Merino, or Rambouillet, is another example, and is a perfectly distinct type in almost every point, bidding fair to eclipse all other European branches of the same

\* The immense variety of beautiful textiles to which improved machinery has given rise, and for which brightness and length are indispensable requisites, were then not thought of.

family in general usefulness. The English Merino, of Saxon origin, introduced by George III., resembles, in general and particular type, the best of the French Merino, i.e. those of the 'Cabaña Imperial,' the Rambouillet, *par excellence*, which are truer in shape and finer than any other French Cabañas.

The characteristics of the Merino, with which our flocks have been 'mestizado,' are small carcase, fine short wool, rather open in fleece, and, as a rule, low-type animals. This openness of fleece has been considerably increased through the cross on the Creole, and the progressive tendency of the existing breed determined by the method of breeding pursued and the general treatment and maintenance of the sheep, has been, and is, as the rule, to reduce, step by step, the weight of the fleece, as well as the length and strength of the staple, despite numerous irregular efforts at improvement.

There are many causes which contribute to this. Amongst them I will name—(1) the inequality of maintenance, whereby the development of the young animal is impeded or curtailed, the wool being rendered short, brittle, and false in staple; (2) the use of small cross-bred rams of remarkably light fleeces; (3) the putting of the rams into the flock at too early an age, and allowing them to run with the flock all the year round, so that they are often reduced to the lowest degree of wretchedness, debility, and disease; (4) permitting old ewes to remain in the flock to breed poor weedy lambs, which in turn transmit their hereditary debility and weediness to their progeny; and (5) allowing 'borregas' (immature ewes) to take the ram at too early an age, thereby producing the same results as breeding from old ewes.

The consequences of these causes combined are very marked even in the finest flocks of those extensive

estancieros who have been the pioneers of sheep-farming, and from whose stock, directly or indirectly, nine-tenths of the Mestizo flocks in the country have sprung. I believe that I am correct in stating that the Merino flocks of the greater part of these extensive estancieros do not average three pounds per fleece, and many not even that. Notwithstanding the general fineness of the River Plate Merino and Mestizo wools, they are ranked among the lowest in the estimation of the great home markets ; and this is directly attributable to its bad condition and to the quality of the wool in point of length and soundness of staple—points in which it is markedly deficient, owing to the causes which I have named.

We have, in fact, notwithstanding most advantageous conditions of climate, &c., no redeeming quality in our sheep ; for the one point which has been aimed at, and attained at the cost of all other qualities, viz., *fineness*, is proving one of our greatest banes. Fineness without length, strength, elasticity, and softness, and at the sacrifice of carcase, is the reverse of desirable and does not pay.

The great consumption of the world at large is of long-stapled or combing wools: long and coarse wools have their especial value, while long and fine wools (fine without prejudice to strength) have theirs. So imperative has this qualification of length become, that we see the highest authorities of Spain contemplating the modification of the Spanish Merino breed, with a view to obtain length of wool and larger development of form. In England the fine-woollen sheep are at a discount, as such sheep, as a rule, do not combine the various qualities which render sheep-breeding and feeding profitable. I have a recent report from England of the returns yielded in a feeding experiment by three varieties of Leicester, and one of Coteswold

sheep—the long-woollen sheep of England—and I find that the value of the fleeces of these breeds is 14*s.* to 16*s.* each; the fleece of one of these sheep in England being worth more than two 'good Mestizo' sheep here.

These sheep, or 'capones,' at the age of eighteen months, under high feeding, attain the weight of 150 to 180 lbs. each, as they stand, and are worth for the butcher 3*l.* 10*s.* to 4*l.* 10*s.* Mature 'capones' attain a weight of 260 to 350 lbs. The policy of introducing such sheep into the majority of the flocks in this country is, however, doubtful under the present circumstances of the flocks. As there is so great a disparity in type and wool, nothing would be gained in the matter of wool, as no cross that could be effected with our fine-woollen breeds would result in anything but shortening and weakening the wool of the English blood—and *vice versa*—destroying the characteristics which give it value; and it would be a long time before any distinct class of wool could be produced in sufficient quantity to assert its claims in the markets. But where a vein of the English blood already exists it will form an excellent basis to refine on with English or French Merino; and with a few years of refining, a very useful and valuable class of wool, and a valuable animal, will be the result. At an earlier date in the formation of the types of our breeding stock, strains of these English long and medium wool breeds would have been of the greatest value, but the opportunity has passed for the generality of our flocks. There are, however, certain native coarse-woollen breeds—for instance the Cordova and the Pampa, which (if steadily crossed with the English long-woollen rams, Coteswold, Leicester, and Lincoln) would, in a few generations, produce a wool of special value, and a breed, perhaps, the most suitable for certain localities in which the native long-wools still exist, and in others more or

less similar, such as may be found in and about the Sierras, Bahia Blanca, &c. In the case, too, of Creole sheep, or ordinary Mestizo, a couple of crosses of some of the English medium or long-wools, and subsequent persistent crossing with the Rambouillet, would establish a very useful class.

The strongest analogy in circumstance and climate, with the most marked difference in results, exists between this country and Australia and Tasmania. Both countries have sprung out of the colonisation of the Old World. In both, the climate is similar, and in a high degree favourable for sheep-farming ; though the preference must be given to this country for general advantages of climate and soil. In both, the breeding of sheep has become the most important rural interest, and, consequently the most important commercial interest. But here the similarity ceases, and the contrast commences. The wools of Australia and Tasmania stand unrivalled in their class ; as a national product they are pre-eminent for length of staple and softness of texture. The Australian wool sales in the home markets are more important than, perhaps, all others put together ; and the prices obtained mark the estimation in which they are held. Australian wools are attaining greater and greater perfection ; so much so that, even in their own speciality, the great flock-masters of Spain consider it requisite to modify their famed Merinos to compete with the Australian and Tasmanian wools.

As we have traced the origin of the Buenos Ayrean sheep, and the causes of their degeneracy, so let us now trace the rise and progress of the Australian :—

As it was natural in a colony deriving its origin from Spain to select its animals from the famed ones of the old country, so also was it in an English colony ; and the English breeds of sheep—Leicester, Coteswold, Lincoln,

Southdown, Merino, and others—were naturally taken there, as were also the Spanish Merino and Saxony. In the forming of the flocks the English breeds took their part, and imparted size, weight of fleece, and length of wool ; giving a useful and well-developed animal as the basis of the colonial flocks, placing them in a most advantageous condition for refining. Long and persistent refining on this sound basis with the best *English* Merino rams (Cabaña George III., the twin Cabaña with the French Imperial Cabaña Rambouillet\* and the best French Merino rams procured regardless of cost), has done all that could be done in point of blood and quality. Thus the colonists, having from the first made their flocks of such value that it *would pay to take care of them*, as flocks from which progression is expected *should be taken care of*, have zealously taken care of them, and dedicated themselves to their improvement. Physiological laws have not been neglected there as they have been here ; the debilitated or diseased ram was not looked to as the sire of the coming generation, but well-selected, well-cared-for, and vigorous rams were put to their ewes ; old ewes went to the butcher, and the tender ewe lambs (*borrequitas*) were not allowed to be dams of a weakly offspring. Thus have they attained their present perfection, and they are still drawing first-class rams, at first-class prices, from England and France ; and, as I have been informed, the Cabaña Imperial supplies these high-caste Cabañas, with not a few of its unsurpassed Rambouillet Merinos.

\* See the work of the Marquis Perales.

## II.

In the foregoing brief sketch we have traced the origin, course, and causes of the comparatively inferior quality and value of the wools of this country in the midst of the vast extension of sheep-breeding interests; and in this I read little short of an impending national calamity—the work of half a century, as it were, lost, and a new start to be made to enable us to hold our way at all with other wool-producing countries. We have also traced the rise and progress of another young country, which has followed a different line of treatment and selection.

It now remains, knowing the causes, and knowing the effects, to determine the requisite remedies, and at once to check the decadence, and raise the type of our flocks.

It will be recognised that the primary cause of all the existing and impending evils has been the absence of the employment of a sufficient capital to form our flocks on the higher types, and of the labour and care needful to develop to the utmost all the good qualities calculated to give solid and enduring value to this most important branch of national industry. The principle hitherto acted on (I speak generally) has been to look for profit in increase of numbers rather than in the increase of intrinsic value in the individuals; and under this aspect people have considered their flocks as not worth taking care of (or expending money on), in the sense in which care and attention are understood in other countries.

There is a limit, however, even to the profitable increase of numbers, without regard to intrinsic merit. Vast tracts of camp have already more stock than they can carry, and a great evil is thus imminent.\* Allied with

\* To such a point has this reached, that I have little doubt, ere long, sheep 'al corte' (all round) will not find purchasers at 15*s* and 20*s* each;

this erroneous principle, and being part of it, is what is known as the Medianero system as hitherto carried out. So long as flock-masters were content with mere increase of numbers as the source of profit, and sought to obtain this profit without direct outlay of capital, it answered well for both parties ; but it has been, and ever must be, fatal to any great improvement in class and quality of sheep. The estanciero could not afford to employ the requisite capital in the improvement of flocks, as in such case the medianero would have reaped an undue advantage ; and on the other hand, the medianeros had not the means to meet the estancieros' outlay, by the employment of corresponding labour to bestow upon the flocks that care which material improvement rendered absolutely necessary. Indeed very few of them had the knowledge of the business essential for the suitable management of an improving flock. Again, under the Medianero system, the estanciero ceases to be the sole master of his property, and cannot dispose of his sheep as is desirable ; that is, he cannot, year by year, throw out the old or inferior ewes, or separate the 'borregas,' as it is the medianero's supposed interest to breed from everything, young and old, in order to acquire the greatest possible number during his term of contract.

Under existing circumstances, I see but one course, which is, that flock-masters (estancieros) should make up their minds to a present sacrifice—an apparent sacrifice—to lead to an ultimate benefit to themselves and the nation. Let them get rid of a considerable portion of their stock, all the old and inferior, if only for the vat—

the worth of the skin and fat. When capital is brought into play to stock more distant lands there will be a reaction, at least in as far as concerns sheep of improved class. This presumption as to the decline of price has been verified since the first edition of this work was published.

and the vat is unquestionably the best place for them—so that they may not mar in their progeny the future of sheep-breeding; then, with the capital realised, let them secure suitable rams, and take increased care of the remainder of the sheep.

### III.

We now pass on to consider the individual defects of the sheep, and the best means of correcting them.

First, the diminutive size of the sheep is noticeable. It is clearly a great defect, as it offers no prospect of general usefulness and value; moreover, a small-carcassed sheep cannot, *cæteris paribus*, produce so weighty a fleece as a large-carcassed one.

The first thing, therefore, to be done, is to increase the size of the sheep by crossing with large true-shaped rams; and on this subject I will quote the high authority of Mr. Carrol, inspector of cattle exhibitions, and veterinary, Dublin. Mr. Carrol writes ('Agricultural Gazette,' October 29, 1864): 'I know well all the different breeds of sheep; the native Cotthonge, the Shrimonghs, the Scotch Highland Stornico, the Cheviots, the different Downs, the large Rosscommons, the Coteswold, the Lincolns, the pure Leicesters, Border Leicesters, *et hoc genus omne*; and the best crosses I have ever had, or have known to be had by anyone else, were those from the *large, strong, sound, well-bred* rams on every description of ewe, large or small; and the very worst from small rams.' This is directly to the point, and should be pasted up on the wall of every flock-master's house. Then we have the unnatural, unhealthy fineness of wool, coupled with light fleece, short and unsound staple. The remedy for this is equally clear—the large, sound, well-bred ram, with heavy

close fleece, of long, sound and strong staple. Now I will lay down as a rule, that no flock-master should admit into his flock any ram that is not of a given weight and size of carcase, and that does not yield a given weight of close fleece, of long and sound staple, and that is not sound in constitution, strong and vigorous, for 'like beget like.' I must leave it to each individual to determine, according to his requirements and means, the minimum weight of carcase and fleece admissible into his flock; it being understood that the greater the weight and size, consistent with true form and type, and the size of the ewe, the better. I may suggest, that in no case should anything under a 12-lb. fleece be admitted. Breed of ewe, degree of fineness of wool; its class to be considered also in reference to the selection of rams.

#### IV.

Next, as to the treatment: It is essential that the rams should not run with the flock. Nothing is so fatal to the sheep-breeder as to turn his young rams into his flock. Degeneracy is the inevitable result; and in no country in the world where sheep-breeding is in a state of progression, is it practised. No ram should be put to ewes until he is between twenty months and two years old; and then, only when he is sound and vigorous. All rams must be kept apart and well fed, and only put with the flock for a certain number of weeks at a certain season of the year. I have no hesitation in stating, from experience, that he will get *more* lambs under this system, as well as infinitely *better* ones.

Every estanciero should keep his rams at the estancia under his own care, or that of his mayordomo. He should

have them well fed, classified, and distributed among his 'puestos' at the proper season ; and the 'puesteros' should be bound to feed them while in the flock. Rams that are not worth this expense and trouble are *not worth having*. 'Borregas,' under eighteen months old, should be parted out from the flock before the rams are put in—'corraled' apart, and 'pastoreada' apart—under care of a shepherd. As to old ewes, get rid of them at any price. The rams should be put with the ewes at the season of the year when the camps are good; and no effort should be spared to keep the flocks in good, even condition. These are the only means which will make a flock of sheep 'worth taking care of,' and give it progressive value.

## V.

We will now pass under review some of the breeds from which to select rams suitable, in greater or less degree, for elevating the type of our flocks.

In doing this, it will be necessary to keep in view the existing prevailing blood, size, and form of the sheep, and the characteristics of the wool.

I have pointed out the great benefit that has accrued to the Australian breed of sheep through early crosses with the English large-carcased and long-woolled sheep. At the same time I stated, that in my opinion the course taken by the sheep-farmers in this country, during the past thirty years, and the type resulting from it, have placed them in a position which prevents their availing themselves of the advantages which, at an earlier period, would have arisen out of the introduction of strains of the various British indigenous breeds. This of course refers to the flocks which have been long 'refined'—Mestizado with Merino blood,

to cross which with British long-wools would bring them back, in the matter of texture of wool, to a near approach to the original Creole or Pampa wool; and it would require a long time, and very careful selection of the progeny on which to refine, to produce a valuable and distinctive type.

Having an established variety, however inferior many of its characteristics may be in degree, we must be particularly careful not to mongrelise it; and the shortest, easiest, and best course is to improve and raise the existing type.

Nine-tenths of our flocks may be said to be Merino in blood, a little finer or coarser in wool, according to the higher or lower strains of this blood. I am, therefore, decidedly of opinion that, under present circumstances, we may expect the best results, and the speediest, from a *persistent* use of rams, of such special type of the Merino family as will most effectually correct the defects of the majority of the flocks.

Of the Merino there are several distinct types created from one parent stock, by selection and treatment, and many subdivisions of the same.

The principal are the Spanish (original), the various German, French, and English branches.

The *exquisite Prussian Silesian Merino*.—A perfect animal in its class, with a wool marvellously fine, of fair length and soft, which we must see if we would comprehend its full beauty; but, alas! unsuited to us for general purposes. Destroy its purity of blood, 'Mestizar it,' and you have relatively nothing. Only under the highest degree of breeding, intelligence, and minute care could such a breed hold its way.

The *Saxon Electoral Negretti*, the *Rambouillet*, and the half-breed between the *Rambouillet* and *Negretti*.—This

last let us at once discard. The one has spoiled the distinctive qualities, or type, respectively, of the parent breeds. As *rams* they are mere mongrels. In all cases, the rams used must have a fixity of type, and persistence of the same blood through several generations. Thus, while the half-bred ram between pure Rambouillet and pure Negretti is not admissible in good practice, on the other hand, if you take Negretti ewes, cross them with imperials, and continue to breed out of the ewe progeny, using always Rambouillet rams, in the course of three or four generations there will be established the requisite fixity of type and blood to render the rams so produced *desirable* stock.

The *Saxon Electoral Negretti*.—Beautifully true in shape, fine and soft in wool, and a fair weight of fleece in the higher strains of blood.

Bearing in mind, however, that augmentation of carcase and yield of fat, increased weight of fleece, and length and strength of staple are primarily needed to give value to our sheep, I cannot see that these races can be used with any marked advantage as sires in the generality of flocks. Their 'habit' and characteristics are the result of special treatment and selection; a high, artificial temperature; treatment and stimulation of the skin; increasing the skin growth and producing the numerous rolls or folds which cover the whole body, and creating the 'habit' of excessive exudation of oleaginous matter; super-inducing a diminution of true carcase and a loss of corporeal vigour—which render them and their progeny ill adapted to harmonise with conditions essentially different from those which produced these specialities, and by consequence inferior reproducers. Exposure of their progeny to inferior conditions of maintenance necessarily increases the tendency towards the diminutive, causes an actual diminution of carcase, the wool though retaining

fineness becomes short and weak in staple and the fleeces open and light, qualities which characterise the majority of flocks resulting from the German Merino types under the conditions to which they have been subjected. A 'high' degree of fineness has undoubtedly been attained through these races ; but that is all, and this is counterbalanced by the loss of strength and soundness of staple. The fineness and delicacy of the high-caste Negretti wool, in an additional graft of this blood, would give us therefore no material improvement, but in many cases the contrary, while the small carcase 'habit' of the race would only perpetuate the paramount defect of the prevailing breed.

There can be no doubt, however, of the value and desirability of these varieties with higher strains of blood\* under judicious treatment, for use in such flocks as are calculated to receive benefit from them. Of these there must always be many, either by reason of their approximation in quality to such high type, or as presenting special conditions the modification of which would be attained advantageously by crossing with them.

There are several sheep-farmers who possess high types of Negretti and Electoral, and reproduce admirable individual specimens. These would do well, however, to put their Cabañas through a severe scrutiny—rejecting all animals that do not come up to a given point in *size of carcase* and *weight of fleece*—and in putting in practice the general principles of treatment and acclimatisation propounded in the course of these papers.

The *Rambouillet* (French Merino).—This breed is de-

\* The majority of those imported are the reverse of desirable ; they are the very weeds of the German Cabañas, whose want of constitutional and corporeal vigour has contributed largely to the defects of the flocks of this country.

rived from several 'Cabañas : ' the Cabaña Imperial standing far in advance of all others for trueness of shape and fineness and texture of wool ; but the high price of the Imperial stock has prevented its introduction into this country, and there are few 'Cabañas' in the province where the blood exists in its purity. The majority of the so-called Rambouillet introduced here are from other and inferior Cabañas, and many of them, judged from their quality, cannot be considered pure French Merino. I say 'so-called Rambouillet,' because this term, properly speaking, belongs only to the Cabaña Imperial.

The 'Cabaña Gilbert' produces an animal distinct in many points from the Cabaña Imperial. The rams of high class from this Cabaña are of greater size than the Imperial, imposing-looking animals, with large head, shoulders, and chest, but the wool is not so fine nor so close, nor is their shape so true as that of the Imperials. English Merino (George III.) more nearly resembles in type the Rambouillet Imperial than any other branch of the same family.

I believe that it is to this blood (Rambouillet—French Merino and George III. Merino) that we must look for the regeneration of our flocks. I am confirmed in this opinion by observation here, by the knowledge of the wants of the great manufacturing interest in Europe, and by the practice of the Australian breeders. The beautiful little Negretti, with its fine soft fleece, may be a more attractive object ; but it cannot fulfil the requirements of our flocks so well as the solid, imposing Rambouillet and English Merino, from whose progeny, in a few crosses only, a size of carcase, a trueness of shape, a weight of fleece, length, fineness, and texture of wool, can be obtained (as I can testify from actual observation), equal, if not superior, under proper management, to nine-tenths of the sheep of the French Merino Cabañas.

The distinctive characteristics of the 'Rambouillet' variety of the Merino are those of considerably larger carcase,\* longer wool, weightier fleece, fewer skin folds, and better fatting qualities than the German varieties admit of.

These are results obtained by a course of treatment conducive to corporeal vigour and healthfulness, which will render them better reproducers and better calculated to meet without prejudice changed conditions, and better adapted to enter into harmony with them and to receive the healthful modifications which local influences impose under a system consistent with them.

In the treatment under which the French Merino types have been formed, there is less stimulation of the skin, less exudation of oleaginous matters; hence a larger amount of the food taken is assimilated into the substance of the body and the wool, while the fulness of the carcase, brightness of look, vigour of carriage, greater length, brightness, strength, and the less greasy or heavy condition of wool may be contrasted with the shrunken habit of carcase, dull, anxious look, and wool overcharged with grease which the German Merinos exhibit. It is also noticeable that the Rambouillets, from their more vigorous and healthy habit and absence of excessive stimulation of the skin, are less subject to 'scab' and other cutaneous diseases, less liable to lung affections, the rams less exposed to constitutional 'break-down' in course of 'service,' and the wool being longer, stronger, and less greasy, is not so likely to collect impurities and suffer prejudice from Burr Carretella and grass seeds.

Like all other high-bred animals, they require to be well kept and consistently treated to retain their good

\* In the acclimatised race of this breed on the Cabaña of my partner and self we attain weights of 200 lbs. and 250 lbs. in two-year-old rams.

qualities, and in this they in no wise differ from any other improved breed. The effects of bad keep and bad treatment may be more *manifest* in this, but not more *real*, than in other fine breeds of smaller size; for their very grandness makes bad condition more visible.

At all cost, we must bring up our sheep in size, yield of grease, weight of fleece, and length and strength of staple. That done, it may be an *after consideration* what distinctive characteristics we may give to the sheep in different localities, according to the nature of soil, pasture, temperature, or climate, markets, and other matters.

Distinctive characteristics can be created by a course of selection without departing from the blood or breed, or they can be grafted by means of a cross and subsequent selection. The nicest judgment is required to adapt such cross and selection to the locality, soil, and climate. I believe I should be borne out by facts and the opinions of zoologists in the assertion that, for general purposes, home-bred—i.e. acclimatised—rams are infinitely preferable to imported rams. For the high-caste breeder it is another thing: it is his province to introduce the best and highest blood, acclimatise it, and *modify* it to suit general purposes.

## VI.

Let it not be supposed that I am ignorant of the enterprise and great cost at which many gentlemen have, during the last few years, endeavoured to work out improvement in their flocks with both the Negretti and, in a few cases, the Rambouillet breeds. I could name a score who have spared neither expense nor efforts within their compass and knowledge; yet, in nine cases out of ten, failure and disappointment have been the result. One

is disgusted with Negretti, another with Rambouillet, and each with apparent reason. But this is a fault which does not depend on the breed, for both strains of blood, within certain limits, are capable of improving our stock in one or other direction. The fault in both cases lies in the *management*; and in many, if not in most instances, in addition to erroneous management, the farmers have made their trials with *inferior 'blood' and small rams*, and have, moreover, used the *half-bred rams of their own breeding* to put into their flocks. To succeed, the management must be a *complete system*. One point omitted will mar half a dozen practised—will mar, in fact, the whole. I have seen very costly 'galpones,' but in no single one have I noticed a thermometer. I have experienced a sense of oppression on entering them, and breathed an air redolent of accumulations of foulness, owing to insufficient ventilation; and I have seen in these costly 'galpones,' costly 'Negrettis' wheezing and looking wretched, costly 'Gilberts' 'tisicos' and miserable, without texture in the wool or firmness in the skin, and I have seen the decrepid progeny of these unhealthy animals running or hobbling with the 'majada' from year's end to year's end, and yet expected to beget improved stock out of 'borregas' and ewes of all ages! I need no one to tell me of disappointment and failure—it was patent and palpable everywhere. Only on one 'Cabaña' that I have had a report of, or seen—a small unpretending establishment belonging to, and under the immediate direction of, a native gentleman—have I recognised the practice of a *thorough system*, more or less perfect in all points as adapted to the climate, &c., and *there* success is as marked as is failure in other establishments of much greater pretensions, as far as extent and costly appliances are concerned. The success attained

by one or two suffices to show that it is attainable by others : and one instance of complete success should animate us with a hope that, despite our present backward position, a great future is open to us if we know how to avail ourselves of the natural advantages at our command.

In the absence of a bond of union amongst the intelligent sheep-estancieros, a great want would be supplied by social club-meetings for the interchange of our respective experiences, agitating questions of interest, and for the promotion of exhibitions, ferias (fairs), and the like, which, as in all enlightened communities, should have the moral and direct support of the governments, both national and provincial, medals and other prizes being awarded for successful breeding of improved stock. Distinction is gratifying to all men ; and many a persevering effort would be made, were there a hope of its being duly appreciated and rewarded with some honourable distinction, such as a national gold medal, &c.

## VII.

Before concluding this brief review, I will quote from the highest Spanish authority, that of his Excellency the Marquis of Perales, President of the 'Asociacion General de Ganaderos.' He says (speaking of the Australian sheep-farmers and their flocks): 'The extraordinary development which the sheep attain ; the zeal with which the sheep-farmers attend to their improvement—importing, regardless of price, the best breeding stock from England (George III. Merinos) and France (Rambouillet), adopting the best methods of breeding and caring, and the best

system of feeding—leaves no room for doubt that the Australian wools must hold the foremost rank for general purposes and manufacture.' Then, after referring to the extraordinary length and softness attained by many Australian breeders, he says: 'It is undoubted that their wools must successfully compete with and lower the prices of European fine wools, and that, therefore, it would be very desirable (*muy conveniente*) that the Spanish flock-masters should, in imitation of the English breeders, modify their breed with a view to increase the weight of the fleece, lengthen the staple, and increase the size, so as to be more productive of *meat and fat*.'

I apprehend that with such an authority confirming the opinions I have expressed in this paper, there will be little doubt left on the minds of its readers that herein are laid down the principles which should guide the great sheep-farming interest of the Rio de la Plata.

I may observe also that the Germans are now recognising the same fact, and are actually getting rid of their small class of sheep to introduce the French (Rambouillet) and English breeds. Entire flocks of numerous German Cabañas are offered for sale as unprofitable stock.

The property of producing meat and fat is one wholly lost sight of in this country, and a greater mistake could hardly be made. The sheep-farmers are placed by it at a disadvantage of a most serious character, as, owing to the small size of the sheep, and small yield of fat, they are at the best of times unprofitable to kill, whether it be for the meat or for rendering for grease. On over-stocked or even fully-stocked camps, owing to the scant food, the little they would otherwise yield is often reduced to *nil*; so that unless purchasers for stocking purposes come forward to buy by the million (the augmentation annually is now rated at from ten to fifteen millions)—

a demand little likely to take place—the sheep-farmers must remain with their sheep destroying their camps—that is, virtually eating up their capital; or they must throw them away, selling them for the value of the skins—or they will die by the thousand.

Now, it must be clear, on reflection, that this evil would be avoided by having a class of sheep whose yield of meat and grease would bear a fair relation to their yield of wool. There would then be a double outlet for the increase at a remunerative price. There can be no doubt that it would pay to grow grease in the shape of sheep, and there are breeds of sheep which would yield 8, 10, or 12 lbs. of grease for every pound yielded by the existing breed as at present managed. Let us look a little closely into this. What is the annual yield of wool per head from the average class of sheep? Certainly not 3 lbs. Its average value is not 3*£* per lb.; but take it at that, and we have 9*£*. The same animals as they are usually treated would probably not give over 5*£* in grease. Sheep of a fat-producing description would yield, say, on good average camps, *fairly* stocked and managed, 1½ or 2 arrobas of grease,\* worth about 50*£* per arroba, which would be 75*£* per sheep at an arroba and a half, and 100*£* at two arrobas yield. Add to this the value of the skin, and I think it will be seen at a glance that such a class of sheep would be a better-paying stock than that which only yields 9*£* per annum gross product in wool, and which are not worth over 5*£* per head for the grease and 10*£* to 12*£* for the skin. Moreover, it must be taken into consideration that

\* I went through a flock the other day, a flock maintained on camps estimated by one of the best of judges to yield 2½ arrobas, some of which would yield 5 arrobas: sheep were weighed to arrive at this estimate, and among them some young ewes weighing 7½ arrobas, shorn.

a class of sheep that yields 75*£* in grease would yield 25*£* in wool per annum, and probably more.

It will be understood that, in throwing out these figures, I do not refer in either case to 'capones' (wethers) for the markets.

Taking a glance back at these few figures, we see that the estimated yield of wool in one case is 9*£* against 5*£* of grease, or nearly double. Let us, however, assume that the grease, under more favourable circumstances, may yield 8*£* to 10*£*—say 9*£*—or equal to *one* year's wool.

A class of sheep which under a fair system would yield 59*£* in grease, would probably yield 15*£* to 16*£* in wool; and a class that would yield 65*£* to 70*£* or 75*£* in grease, would give 20*£* to 24*£* in wool.

In these, though the yield for wool is put down at double, more than double, the average return from the prevailing breed, the yield estimated from grease is equal to three years' wool, more or less. This may be taken as a fair relation of value between the yield of wool and yield of grease, and so long as a sheep-farmer can get anything approaching this relation of value, it will pay him better to steam than to keep anything in excess of the picked breeding ewes, even under favourable circumstances; and he need never have his camps overstocked, or be hard up for dollars, as so many must be when the wool market is dull and there is no demand for sheep. In fine, one of the main sources of profit in sheep-farming—after the accumulative increase has reached a certain point in relation to the extent of land—consists in a marketable increase, in being able to realise in one form or another the equivalent of the increase year by year. Failing this, the business ceases to give a fair return for the capital represented by land and stock. It is a

mere truism, that meat and fat producing qualities constitute marketable stock, and the breeders' sheet-anchor.

Some few years ago the flocks were larger—double what they now are in general. The reduction of the numbers in the flocks was found to be advantageous, and was a move in the right direction. To improve the class of sheep, so that they may yield a better class of and more wool, and a much larger quantity of grease, and that the increase may be larger and of stronger and better lambs, it is desirable that the flocks should be still smaller—half what they now are—and consist of breeding-ewes only. This suggestion is the reverse of unimportant, and, coupled with the highly important aim of fat produce, merits the earnest consideration of the sheep-farming body.

It results from a careful consideration of the all-important matter of selection and development of breeds (as adapted to the country, in its extent and variety of soil and climate), and of the existing stock, that there are four types which stand prominently out :—

The first, and most important, by reason of the circumstances and position of the sheep-farming interest, is that which is and can be produced by the persistent use of large vigorous rams of the French Imperial and English Merino blood, which will give length, strength, and abundance of wool of the highest value in the European markets, with good carcase and fat value.

Second,—A breed or type suited to certain localities would result from the cross of the English,\* long, lustrous-woolled sheep with the Pampa, Creole, Cordova, Salta, and other long and coarse-woolled races of the country

\* The sub-race Mauchamp of France might also be a good cross.

persistently followed out, which would, in a few generations, produce a most valuable and useful wool, and sheep that would be very valuable in carcase and fat. Also the Shropshires on the Creole and ordinary Mestizo.

The third requires a somewhat longer process, but would produce a very desirable sort ; viz., the Creole or common Mestizo crossed with the long or medium wool races of England, Romney Marsh, Coteswold, Lincoln Downs, Dorsets, &c., according to circumstances and locality, and then refined persistently with French or English Merinos. This wool would assume a special type, and in the course of time, good length and considerable fineness would be the characteristics, and the sheep would be an excellent carcase and fat-producers.

Fourth,—The German Merino type, on a more limited scale—when great attention is paid, and the largest animals only selected to breed from, as possessing the longest and most elastic staple—is a desirable variety to retain, having its special ‘destination’ or use. It is notorious that this variety, like the Spanish variety, its parent, is declining in importance, and, as it were, going out of date everywhere. It is, however, so valuable as the prolific nursery of improved types, and for crossing with certain inferior breeds, that it is desirable to retain it in the higher grades, and under a system consistent with its delicacy of wool, but at the same time tending to give greater vigour to the animal.

#### ADDENDUM I.

A good and simple practice in refining for farmers whose means are not large—one perfectly feasible on the smallest establishment—is to commence with a good useful class

of acclimatised rams, and pursue the following course, say :—

Select from the flocks a given number of the very best ewes, uniform in size and class of wool. Take, for example, four hundred. Purchase for these ewes, six fine large suitable Mestizo rams\* of more or less advanced type ; each ram being calculated to give, say 11 to 12 lbs. of wool, or upwards.

The product in ewe lambs from these 400 will be, say 170, which should be separated, when weaned from the dams, and formed into a flock by themselves. When eighteen months old, put into these three rams procured from the same 'Cabaña' as the six, but of a *higher strain of the same blood, and of a weightier fleece*. In the following year there will be, from the four hundred ewe flocks, another 170 'Borregas' of eighteen months old, which should be added to the first lot, and two or three more rams, of the same type and family as the other three, would be required. The next year the same process must be repeated, and so on. Meanwhile this 'Borrega' flock will have produced lambs of a higher quality than themselves ; and for these a still higher type of acclimatised rams of the same blood would be advisable ; and thus ascend the ladder.

I believe that few 'estancieros' can advantageously breed their own rams. According to the law of division of labour, perfection is attained by special dedication to the separate parts of a whole ; and sheep-farming is not an exception to the general law. Such minute and

\* In using the term 'Mestizo rams,' I may observe, that after a few generations, when one type of Merino has been crossed with another, the progeny is, to all intents and purposes, *pure* in blood, and in some instances a type is produced superior to the sires themselves. The term, therefore, must only be accepted as conventional when the crossing and refining have been effected persistently with one and the same blood or variety.

detailed care is required in the management of a ram-breeding establishment, that it is incompatible with the direction of a large estancia, unless a perfectly distinct staff of great intelligence is appointed to the work.

#### ADDENDUM II.

I have counselled the selling of a portion, i.e. the reduction, of the stock on all sheep-farms, when the number of sheep approaches the limit of the capability of the land for carrying stock with safety to the well-being of the sheep and their progeny. Despite *ordinary* care, large flocks have a tendency to degenerate relatively, rendering necessary a constant dependence on the high-caste breeder, whose business it is, by *extra* care, to preserve elevated types and quality, and supply new blood. This reduction should be on a scale which shall leave ample room for future increase of *better* stock, and, at the same time, furnish funds for organising and effecting requisite improvements.

When there is ample room for a flock of sheep, increase is so rapid (supposing the stock to consist of animals that have not passed the age of vigour) that we may estimate them to have doubled themselves in three years; and they may do much *more* or less, according to the system followed, and the composition of the flock, i.e. the proportion of breeding-ewes in it. A farmer who has 15,000 sheep will, therefore, have an increase of 5,000 yearly, for which number he has to provide camp each year, or they will die on his hands if not otherwise disposed of. This is a self-evident proposition.

All sheep or ewes cease to be 'profitable stock' after they reach a certain age; after a certain age, too, they

rapidly die off in inclement weather. The life of a sheep may be set down as eight to nine years (many will *live* and *lamb* till ten). The *profitable* life of an ewe is considered six lambings ; any subsequent progeny, as a rule, is deficient in all desirable qualities. Infirmities, or bad seasons, will destroy numbers before they reach that age or term of profitable existence.

The sheep-farmer, therefore, who has a lambing of any given number, say in 1860, will have a few of those animals living in 1868 ; consequently, if he has not previously disposed of them, they will have died on his hands. He will probably complain of his annual losses as something extraordinary, whereas they are merely a natural consequence of the termination of the 'span of life' of the animals. He will obtain more than a negative advantage by selling (for the vat), and will also avoid this loss. The risk of loss by deaths increases after the fourth lambing, as the 'cold waves' or the 'hot blasts' tell with more or less effect on declining vitality. The direct advantages of employing the capital realised by the sale of unproductive stock, in the improvement of the quality and yield of wool of the remainder, will be clear from the following explanation :—

A party who has any given number of sheep, sells, say, one-half of his stock, retaining only the 'borregas' and ewes that have lambed their first, second, and third lambs. Let us assume that the sheep-farmer, at the time of taking this step, valued his stock, as they stood, at 35*£* or 40*£* per head, and that he sells all the ewes that have passed their third lambing at 20*£* or 25*£* each ; then those which he retains will certainly represent a value to the flock-master of 45*£* to 50*£* each.

The 20*£* or 25*£* per head realised for these elder sheep will represent the probable net product of their yield of

wool during the remainder of the natural period of their profitable lives. Moreover, this sale is cash, and the yield of wool to give that amount would extend over a period of, say, three years; this cash, therefore, is worth an interest of 25 per cent., more or less. This 25 per cent. interest on the capital realised, in addition to setting free the camp for future and improved increase, is manifestly more than an equivalent to anything the flock-master could possibly have got out of the sheep sold, irrespective of the wool.

The employment of the capital realised in the improvement of the sheep, i.e. in the purchase of large, heavy-fleeced rams, and in the requisite care, feeding, &c. (as suggested in the foregoing paper on sheep-farming), may be fairly calculated to give the following results :—

At the end of three years the stock will have considerably more than doubled itself. This increase of improved or higher-bred animals will represent a value per animal of, more or less, double that of the previous stock; the yield of wool from them will be, more or less, double in quantity and much superior in quality, fetching, too, a higher relative price.

The 'value' of sheep to the wool-grower is determined by the probable money-product of the wool. This value is rated as the net product of three years' (or at most four years') clip. The product of three or four years' wool, therefore, represents the capital in, or value of, the sheep; and all product of wool, over and above three or four years' clips, stands as profit or 'interest' on that capital, and against contingencies. If, therefore, the sheep-farmer improves his sheep, and augments the weight and quality of their fleeces during that period, that 'profit' or 'interest' will be proportionately greater.

The increase of numbers represents the charges of care

and management, and the interest on the money value of the land,\* plant, improvements and the rams; therefore, according to the value of the stock, will the interest of profit on this money value, or capital, be greater or smaller.

Thus, a farmer has a league of land, and on it, say, 8,000 sheep, which double themselves in three years; this increase of 8,000 sheep represents, as just said, expenses, interest on value of land, &c.; the annual increase therefore averages 2,666, from which he may deduct a fourth for expenses, say 666 sheep, leaving the 2,000 remainder as interest. Assuming that the land and plant are valued at 1,000,000\$ currency and the 2,000 sheep at 50\$ each, this interest or profit would be 100,000\$, or ten per cent. per annum. If the value of the increase is only 35\$ per head for sheep, then the interest or profit is 7 per cent.; if, on the other hand, 100\$ per head be the value of this increase, the interest or profit is 20 per cent.; or, this profit is divided, as it were, with the land, augmenting the value of that land, until an equilibrium is attained with the current interest of landed securities.

The calculation is different on establishments for the breeding of high-class sheep for the sale of rams. In these the value of the male lamb at the time of weaning represents the value of the ewes and the rams. Assuming that two ewes lamb three male lambs in three years, the value of these three lambs represents the value of the two ewes, and the proportion of the value of the ram; the ewe lambs represents the interest or profit on the land, plant, &c. after paying all expenses of management, feeding, &c. After weaning, the ram-lamb is chargeable with his own expenses, and he rises in value according to these expenses, until he is ready for service; his proportion

\* The stock the land will carry fairly represents its value.

of galpon, potrero, corn, hay, cut-grass, bedding, care and labour, risk and interest, all must go to his account, and the breeder must get back these expenses or he loses money.

### ADDENDUM III.

I have before me the 'Journal of the Royal Agricultural Society of Scotland' of July 1865, and in it I find a direct corroboration of what I have written on the subject of the Australian sheep and wools. In a paper from the pen of the renowned 'Old Norfolk Farmer,' there is a brief history of the origin of sheep in Australia, which is as follows:—

In 1788 Captain McArthur introduced into that colony a small number of Bengal coarse-woolled sheep. Nine years later three rams and six ewes of German Merino arrived at the colony unexpectedly—they had been destined for the Cape of Good Hope, for which they had been shipped by the Dutch Government. Captain McArthur purchased them, and continued systematically to cross and refine his Bengal stock with them. Ten years later he returned to England, and purchased from His Majesty George III. eight English Merino sheep, which he took out with him to Australia to continue the refining of his flock. Subsequently and continuously, as I have said in my paper, the Australians have bred from the best blood of English and French (Rambouillet) Merinos, as well as German, with crosses of Leicester, Southdown, and other British long and medium-woolled sheep.

The result, as stated by the 'Old Norfolk Farmer,' is, that the Australian wool is of greater value than any other, 'being as fine as the Merino, at the same time that it is *longer and stronger* in staple, and,' as he says, 'its

value in the market bespeaks its merits; for, while the finest (European) Merino is worth only 2s. 3d. per lb., the best Australian wool is worth 2s. 9d. per lb.'

The facts and results related by the 'Old Norfolk Farmer,' of the commencement and success of Australian sheep-breeding, bear so marked an analogy to an individual case of breeding and equal success in this country, that I give the facts: A gentleman of this country, possessing a number of pure *Pampa* long-woolled sheep, crossed and refined them for a series of years (20 to 25) with the Merino (Saxony). From the total of this refined flock he then selected 180 ewes—the flower of the flock. These he crossed with pure *Cabaña Imperial Rambouillet* rams, and for nine or ten years he has continuously refined them with pure rams of the same blood. The result of his system of management and breeding is the success which I report. His breed now surpasses in weight of fleece, length and strength of staple, any and all of the imported European sheep, and possesses a degree of fineness, softness, and elasticity of wool very remarkable, and sufficing for any purpose whatever. The result of the sale of his last year's clip in the 'Plaza Constitucion' (despite 'sarna' caught from a neighbour's flock), as per broker's account sales, was, for the 'borrega' and ewe flock, 53*g*  $\frac{1}{2}$  per cent. per sheep, equal to 7s. 10*d*. per head in wool on the spot. This same parcel of wool was re-sold at an equivalent to 60*g* per fleece—equal to nearly 9s.

This gentleman is Don Manuel Benavente, of whose stock my own flock (in association with Mr. Benavente) is composed; so that I write with a perfect certainty of facts, which any person may verify by a visit to the establishment.

I unhesitatingly add that these sheep have assumed a type of their own which will vie with any other for

general usefulness, and as reproducers for refining and improving the breeds of this country, as being bred to perfect harmony with its conditions, they are unequalled. They surpass in length and weight of fleece those of the Cabañas 'Imperial' and 'Gilbert,' are finer than the latter, and as fine as the average of the 'Imperials.' Many of the higher types—the picked sheep—surpass the best I have seen of the 'Imperials' in all points of general utility.

These sheep, like the Australian high-caste, must take rank as an established special variety,—a variety or race the result of the climate-influences of the country and a treatment suited to it, the realisation of the paramount object of a high-caste breeder.

#### ADDENDUM IV.

There are several establishments dedicated to the breeding of Negretti rams, the stock of which is highly creditable and equal to the majority imported. At these establishments the aim has been to *transfer* and perpetuate in this country, the identical type and qualities of the sheep of the European Cabañas from which they were derived, subjecting the sheep to the same treatment. But they have not produced—have not aimed at producing—an improvement of type, or a modification of it, to render them *better suited* to this country. It must be borne in mind that we cannot transfer the German climate to the River Plate, but we have a climate admirably adapted to the development of improved types.

The proprietors of these establishments will not require me to apologise for this suggestion as indicating a higher sphere of action on a field worthy of their labours, *viz.*

the reproduction of the German Merino blood under a special and more generally useful type by the influence of selection—perhaps, a judicious cross—and treatment, in all respects suited to our climate, as has been done by the gentlemen above referred to, with the French Imperial Merino, and as has been done by the high-class Australian breeders.

We have only to refer to the opinion of the high Spanish authority I have quoted in the foregoing paper, and the present recently adopted practice of the North German Cabañas to guide us to the direction in which modification should be sought, i.e. a general usefulness and consequent profitable return, length, strength, and abundance of wool, and large size in the animal, with good *fattening* properties.

## PART III.

## DISEASES OF SHEEP.

## THEIR TREATMENT.

*The scab.*—This is one of the most severe scourges of our flocks, and, from its contagious character, there is scarcely a limit to its ravages. ‘Prevention is better than cure;’ every precaution should, therefore, be taken against mixture with contaminated flocks, or feeding over ground on which such a flock has been pastured. Dirt, damp, ill-ventilated ‘galpones,’ and over-crowding, as also insufficient and injudicious feeding, are direct causes of the disease, and should, therefore, be carefully avoided. Salt as a purifier—rock-salt—should be disposed in the ‘corrals,’ or in shade, where the sheep can have free access to it.

There are many remedies, but I consider none more effectual than preparations of tobacco and sulphur; and as soon as the disease appears it should be attacked.

The *Southdown* wash is a preparation of this class; and there are agents in the city for the sale of the paste, each tin being labelled with instructions for use.

*Demarchi’s* preparation of tobacco and sulphurous gas I have found efficient and convenient. It is sold at Demarchi’s establishment in the Calle de la Defensa, in pint bottles. I have adopted two modes of using this preparation. One, when the wool is on the sheep, is as follows: To a demijohn of five gallons (five frascos) of water, put one pint bottle of the mixture, and keep it

corked. Take such a tin as is generally used for filling lamps with kerosene, and having filled it from the demijohn, open the wool of the affected sheep the whole length of the back from head to tail, and pour in the liquid ; this done, open the wool on the sides, and down the fore and hind-quarter, pouring in the liquid. A demijohn (i.e. one pint bottle of the preparation) of five frascos will probably suffice for thirty-five or forty sheep, or for fifty or sixty lambs.

After shearing I use it as a bath. I use an octave cask of water to six pint bottles of the preparation, keeping it closely covered. From this I put into a large tub or trough sufficient to make a bath. As the sheep are shorn, I dip them thoroughly, covering the bath the moment the animal is taken out. I then place the sheep in another tub, with a platform in it, to drain for a few minutes, then untie, and loose the animal. If there is any hard scab on the sheep, it should be well rubbed in the bath. This treatment I have never known to fail, if done efficiently. The bath costs about 18  $\text{m}/\text{c}$  per head. An excellent dip can be made on the farm, by simply boiling or infusing tobacco and mixing the infusion with a given quantity of hot water. The dip should contain, in nine to ten gallons of water, the juice of forty to forty-five ounces of tobacco. Sulphur may be added to the infusion, 1 lb. to every 5 gallons ; the temperature of the bath should be about 100° Fahr. This cure never fails when properly and carefully applied ; if there is the slightest question in any one instance of the efficiency of the first bath, a second should be given 10 to 12 days after the first.

*Foot Rot.*—Another great scourge, and likewise contagious. This is produced by treading in soft, wet ground and watery herbage.

*Treatment.*—Cleanse the foot, and pare away the hoof wherever it is detached; wash the affected parts clean with chloride of lime water, or Demarchi's sheep-wash, or tobacco water and dry; then apply with a feather the butter of antimony (a very efficient caustic); after a few minutes for the caustic effect to be complete, a pinch or two of Cordova lime may be 'patted' over the foot, or coal oil, or tar and grease, with or without a mixture of lime, or a small quantity of spirits of tar. As the rule, I use *Swedish tar* or lime, and in certain cases mercurial ointment.

*Leech in the Liver—Flucke.*—For this there is no cure. The free use of salt is a preventive.

*Hove.*—Salt is a preventive; it is also a cure. A dessert-spoonful dissolved in water is often effectual; still more effectual is half a drachm of chloride of lime; and in extreme cases 'tapping' between the last rib and the point of the hip. I have, however, found that in ordinary cases, taken in time, a good hard rubbing on the distended parts, or even running the animals about, suffices to give relief.

*Costiveness and Fulness of Blood, with dulness and giddiness.*—In these cases the following purgatives may be administered, say—2 oz. Epsom salts, with a little ginger, or 2 oz. linseed oil in linseed gruel. When the giddiness is considerable, and the animal is evidently much oppressed, bleeding is desirable in the neck or leg, or under the eye, if this is understood; if not, cut a joint off the tail, and if that fails to bleed (which in a far gone case it may) I have found a cut across the nose have the desired effect. This fulness of blood and vertigo arises from too luxuriant pasture in the spring of the year.

*Spasmodic Colic.*

Ginger . . . . .	1 drachm
Epsom salts . . . . .	3 "
Opium . . . . .	2 or 3 grs.

(Repeat if required.)

*Dysentery.*

Linseed oil . . . . .	2 oz.
Opium (powder) . . . . .	2 grs.

(Repeat, with less quantity of the oil.)

*Inflammation of the Lungs.*—Bleeding, purgatives, Epsom salts, or linseed oil. A similar treatment may be followed in all cases of inflammation.

In acute inflammation with spasmodic symptoms, the use of opium or laudanum, in addition to bleeding and purgatives, is desirable—one drachm to two drachms of laudanum in linseed gruel, and one ounce of linseed oil, is a suitable dose. In cases of inflammation of the bladder and spasmodic contraction, it is the usual course. In extreme cases I have used tobacco water with success, no other remedy being at hand.

*Maggots.*—There are several remedies for these. The first thing to be done is to clear them out of the wound, and wash well with tobacco water or chloride of lime water. Train oil, sulphur, and pepper will kill maggots. The remedy which I most commonly use is strong decoction of tobacco, or the pure preparation of Demarchi (tobacco and sulphur) poured into the wound, and then 'dust in' Cordova lime, and work the two up to form a paste; dress daily until cured. After a time the simple dusting with lime will suffice.

The foregoing appear to me to be the simplest and most available medicines and treatment; and consequently the most desirable for those who have to be their own farriers in the camp.

## PART IV.

THE SCIENCE OF HIGH-CLASS SHEEP-BREEDING ; WITH  
DETAILS OF MANAGEMENT.

## I.

SHEEP-BREEDING must be divided into two distinct branches. One I denominate 'Sheep-Farming,' which is the rearing of sheep for the different purposes of wool-growing and meat and fat producing ; the other is the rearing or breeding of fine stock, with which to supply the wants of those who devote themselves to the other branch, or department. These branches are essentially distinct ; at the same time they are mutually dependent, in accordance with the law of the division of labour, a law demonstrated by political economists to be inseparable from rapid development and the attainment of perfection in the great industrial pursuits of the world.

We must start at once from this point, and accept the law. It must be manifest to all practical men, on reflection, that these two departments of sheep-breeding, as a rule, must, in this as well as in other countries, be a separate business ; indeed it is probably more necessary in this than in any other, for we cannot shut our eyes to the extreme difficulty of procuring the means or commanding the hands and intelligence requisite to carry out and do justice to the two branches. Of course I

speak generally ; for there may be, and probably are, a few who, from unusually favourable circumstances in point of establishment, facilities, and large means, will succeed, and who, from combining energy, knowledge, and resources, need not be daunted, even by the great difficulties presented by such an undertaking ; but these, I say, are the exceptions.

The object of the 'sheep-farmer' in this country is to rear a large number—tens of thousands—of sheep, of a good thrifty class, to yield as large a quantity as possible of a generally useful wool, of ready sale at a good price. To bestow on his flock the requisite attention to secure their progressive improvement and well-being, will afford him ample work, ample thought, and ample employment for his capital. His occupation is on a large scale, and the distraction that would inevitably result from his dedicating himself to the minute details attendant on the other branch would be extremely prejudicial to his main interest. For the higher blood he must look to the high-caste breeder, and from him procure the rams best suited to the condition of his flocks, and of his purse.

In a previous paper I have enumerated the paramount requirements of the flocks of Buenos Ayres, and sketched the main principles which should guide the flock-master in the selection of his rams, and the method of treating them, and of disposing them in his flocks to the best advantage ; and there remains for me only to urge all 'sheep-farmers' to keep within compass of the capabilities of their lands for carrying stock, and to make a provision against scarcity for the maintenance of their flocks, as well as for the higher feeding of their rams. The sheep-farmer should cut and stack some natural grass as hay, if he would not have 'alfalfares.' He cannot go wrong in this, for the natural grass and trefoil, even

though mixed with stray thistles, dock, 'flor morada,' and the like, make excellent food for sheep or other animals provided they be 'got' with the sap in them. Good, elastic, sound-stapled wool is not compatible with ill-kept sheep; for the part of the wool that is grown during the period of low condition is 'false' or unsound, and it will inevitably break at that point in the working, thus rendering the short shorter. This is one of the causes which contribute in a very marked degree to the discredit of Buenos Ayrean wools, lowering their value by a very large percentage. The sheep-farmer, too, should not fail to grow a moderate quantity of maize, for it is essential that when he has invested in good, large, vigorous rams, they should be corn-fed, and have the protection of a 'galpon,' or shed. No matter what breed of rams he may purchase, he will surely be disappointed in their progeny if the treatment of the sires is not generous and well regulated. The tendency of this or that breed to degenerate is a subject of constant complaint; and this tendency is an undoubted fact when men or beasts rarely, or only by fits and starts, get enough to eat. Believe it, my friend, you would not long be the happy possessor of those brawny arms, bright eyes, and that portly appearance, did you get all 'farina' and no 'asado'; and those half-dozen magnificent 15 lb. fleece rams, for which you have paid 5,000\$ or 6,000\$ apiece, will not long look as they now look, and their next fleece will fall very far short of the 15 lbs. if you stop their corn, hay, and cut grass, and turn them out on cold wintry nights.

The rearing of 'high-caste breeding stock' is, undoubtedly, the life-spring of successful sheep-farming in all countries, and from this department of the business must flow all that is good and all that is to determine the value of the products (and their standing in the eyes of

the great consumers) of a wool-growing country. No great national product can long depend on foreign countries for its means of reproduction. The best and most suitable blood that the world can produce should be sought out and introduced into a country proposing to elevate itself in the production of an inexhaustible source of wealth ; and with this 'blood'—this breeding stock—enterprising and intelligent men must work, to create for their country an equal or superior race of reproducers, to disseminate, to percolate, as it were, through the whole land. In this way only have nations, by means of crossing their own breeds, or improving and acclimatising those of others, created for themselves breeds suited to the climate and other local conditions, and possessing, each in its way, special qualities and value.

In nations possessing the highest degree of civilisation, many individuals have earned for themselves an ever-enduring fame by their labours in this field. Crowned heads have wrought in the same field with enthusiasm and constancy, achieving great results ; and this, too, in many instances, from very small beginnings and at great cost, sometimes by national treaty, and even by smuggling.

For Buenos Ayres, 'high-caste' breeding establishments for sheep are a desideratum. To this branch it is essential that men of special aptitudes should dedicate themselves, and work with the very best materials, regardless of cost. Men of considerable intelligence and good knowledge of the subject, great powers of observation, concentration of will, patience of detail and enthusiasm in the pursuit, can alone hope to obtain marked success.

Perfection in the vegetable and animal kingdoms is obtained by skilful cultivation, by a judicious application of natural laws in their treatment—the laws of nutrition,

thermal laws, the principles of selection, and climatic influences.

Everything superior in class, or quality, is essentially artificial,\* and the infinite variety of type in animals is due to the special application or accidental concurrence of conditions favourable to its production. When once a type, quality, or habit, is established or 'fixed' in any animal, it becomes hereditary so long as the progeny of such animal continues to exist under the same conditions as those under which it was created; but, if it be subjected accidentally or systematically to different treatment and different influences, the type, quality, or habit will necessarily become modified for better or worse; and there is unquestionably an art in adapting treatment to the surrounding natural conditions of soil, climate, &c., so as to produce advantageous modifications in the direction most congenial to those conditions. The perfections or good qualities attained by individuals, or nations, in breeding sheep, under the law of hereditary transmission, are available to others for pushing still further the refinement and adaptation of breeds, and the power to create 'races' under the influence of climate and treatment is commensurate with the varieties of local conditions. On the other hand, if the progeny of highly-cultivated domesticated animals are returned to a state of nature, or in any degree approaching it, in habit of life, feed, and sexual connection, they will fall back from all the good qualities of their progenitors, and rapidly, or in a marked degree, degenerate towards the wild type, without acquiring the vigour of a wild race.

To avoid a toilsome course, chequered by many failures,

\* Domesticity, regulated procreation, good even feeding, and adaptation of treatment to local conditions, determine improvement and ensure maintenance of vigour: hence this condition is artificial.

in the work of improving and perfecting our sheep, the 'high-caste' breeder should have at least a fair knowledge of scientific principles, and the various 'cosmic' influences regulating and affecting the development of animals, their nutrition, and well-being. I will endeavour to condense a few of these principles, and give them a practical application. I need hardly apologise for here referring to 'primary natural laws,' in order to trace their connection with the matter in hand.

In the whole universe no atom is lost. Force ever exists—always equal—but ever changing, and passing from one form to another. All things are mutually dependent. Decay is the end of production—production the result of decay—life of death—and death of life. All life is the result of certain combinations and influences; and all growing and living forms are composed of the same elements. Vegetable substances spring from the earth, and inhale from the atmosphere. They contain within themselves mineral constituents, non-combustible elements drawn from the soil by their roots, and gaseous elements, combustible elements, drawn from the atmosphere by their leaves, &c., elaborated into an 'organism' under certain 'cosmic' conditions—light, heat, the sun's rays, moisture, &c. When these vegetable substances decay, their non-combustible elements return to the soil, and their combustible or gaseous elements to the atmosphere (the result of combustion), available to be transformed into other substances, or other forms. When taken as food, they enter into the 'organism' of the animal feeding on them.

Animal forms are composed of identical elements, or constituents, with the vegetable. These constituents are derived from the vegetable substances on which the animal feeds, and are elaborated into the higher organism of the animal under the action of the so-called 'vital force,' the

circulation of the blood, and its oxidation by means of the respiration of the oxygen of the atmosphere, being ultimately returned to the air and the soil in the exhalations and excrements, and the decomposition of the body after death.

All alimentary substances, vegetable or animal, are composed of mineral substances, nitrogenous or albuminous compounds (strength-giving), and heat-giving and fat-forming compounds ; also water.

In vegetables, the heat-giving or respiratory compounds are in the form of starch, gum, sugar, and in many seeds as oil—for instance, linseed, rape, cotton, &c. In the animal structure the albuminous compounds and minerals are the flesh, blood, juices, and bones ; and the heat-giving compounds, which are as starch, &c. in the vegetable, appear as fat and fatty tissue. Albuminous compounds and minerals exist in large proportion in the hair or wool of animals, and also in the horn and hoof ; *these* are nitrogen compounds.

To exhibit the whole subject in a clear light I will give some tables of analysis, made by the most eminent chemists of the age.

MINERAL CONSTITUENTS OF THE ASHES OF FEEDING SUBSTANCES.

	Maize.	Mixed Natural Grasses.	Alfalfa in flower.	Clover Trefoil.	Bran.	
Potash . . .	26.63	18.11	14.03	24.928		
Soda . . .	7.54	1.35	6.44	3.039		
Magnesia . . .	15.44	6.75	3.64	12.176		
Lime . . .	1.69	21.85	50.57	34.918		
Phosphoric acid .	39.85	5.97	13.68	7.352		
Sulphuric acid .	5.56	2.46	4.23	3.718		
Silica . . .	2.29	37.89	3.46	1.313		
Iron, per Oxide .	.60	1.59	.63	1.470		
Common salt . . .		4.03	3.32	11.096		
	loss .40	...	...	...	loss 5.08	
	100.00	100.00	100.00	100.000	100.00	

Phosphate of Lime and Magnesia

## NUTRITIVE CONSTITUENTS, &amp;c.

	Corn.	Clover Trefoil.	Alfalfa in flower.	Bran.
Albuminous or nitrogenous compounds—i.e. flesh-forming and strength-giving.	13	3.606	3.83	14.9
Heat-giving or Respiratory and Fat-forming—starch, gum, sugar, oil, and husk	69.2	13.864	*14.44	*56.6
Water . . . . .	14	80.640	69.95	13.8
Ash . . . . .	3.2	1.890	3.04	5.0
	100	100	Wood- Fibre Huak *8.74	*9.7
			100.00	100.00
			* Together 23.18	* Together 66.36

## MINERALS IN THE ASH OF

## FLESH.

Phosphoric acid . . .	36.64
Potash . . . . .	40.20
Earths and iron . . .	5.69
Sulphuric acid . . .	2.95
Chloride of potassium . .	14.52

100.00

## WOOL.

Silica . . . . .	16.74
Potash . . . . .	4.12
Soda . . . . .	2.00
Lime . . . . .	15.16
Magnesia . . . . .	1.45
Salt . . . . .	11.94
Sulphuric acid . . .	12.94
Phosphoric acid . . .	15.65
Iron . . . . .	20.00

100.00

## BLOOD OF SHEEP.

Phosphate of soda . . .	13.30
Common salt . . . . .	66.57
Sulphate of soda . . .	
Phosphate of lime . . .	19.90
Magnesia and iron . . .	

loss 0.23

100.00

## BONE.

Phosphate of lime . . .	63.68
Carbonate of lime . . .	15.49
Silica, alkalis, water, &c. .	2.83

100.00

## NUTRITIVE CONSTITUENTS OF FAT MUTTON.

Albuminous or nitrogenous compounds, and sulphur	Proportion 10 parts
ditto, in the flesh	
Fat	" 27 "

## WOOL CONTAINS:

Hydrogen and carbon	57.67
Nitrogenous compounds	17.72
Sulphur	24.61
	100.00

From a study of the foregoing, it will be seen that vegetable substances contain certain mineral constituents in various proportions. These they draw from the earth, and they are essential to the building up of the plant. The other constituents are the nitrogenous compounds, derived under the influence of light, heat, &c. from the ammonia contained in the atmosphere; and the non-nitrogenous, the hydro-carbons, such as starch, &c. derived under certain influences (called the vital force) from the carbonic acid of the air.

The other constituent is water.

It will be seen also that in the animal feeding on these vegetable substances there exist in the blood, bones, flesh, and wool the same mineral substances; and these pass into them from the food taken by the animal. The flesh of the animal is formed of albuminous or nitrogenous compounds, which are assimilated from the like compounds of the vegetable matters; hence these compounds are called flesh-forming—flesh being merely a more highly azotised form of the same materials. Likewise, the non-nitrogenous portions, or constituents, of the plants which are present in these, in the forms of starch, sugar, gum, &c.—which are hydro-carbons—enter into the animal organism, and, in the vital laboratory, are converted into fat—a more pure and concentrated form of hydro-

carbon: hence they are called fat-forming. They are also styled heat-giving, or respiratory, for the reason that, while a portion of them is retained as fat, and goes to form the fatty tissues as well as the fat deposits, another portion is burned in the animal system. The oxygen of the atmosphere being inhaled, and coming in contact with the hydro-carbon, a combustion takes place, from which the heat of the animal is derived; exactly on the same principle that coal (a hydro-carbon) is burned in a furnace, or tallow, grease, or oil in a lamp. The result of this combustion is carbonic acid gas, which is exhaled.

From this the very great importance of attention to the food of animals will be self-evident. The structure of the animal, its bones, nerves, flesh, fat, and wool, are dependent on it for their development and quality. Not only must animals be furnished with a given quantity of food, but the animal must receive it in due proportions, and of a quality requisite for its fullest development in all its parts, with a slight increase of one or other constituent of food, when any deficiency is noticeable, or any special 'force' is required to be brought out or developed. Should there be an insufficient proportion of fat-forming and respiratory materials in the food, the animal would become lean and the heat of the body would be insufficient; and, in the absence of a sufficient supply of combustible matter, it would prey upon its own tissues. In the like manner, an insufficiency of flesh-forming substances would cause the animal to shrink in muscle and decline in weight and strength; an excess of fatty matters would clog up and impede the action of vital functions and procreative powers; a deficiency of albuminous compounds would weaken these powers, and affect the progeny to a very serious degree; and the inevitable

result would be degeneracy in size, quality, and form, and deficiency in length, strength, and quantity of wool.

It is of the greatest importance to the breeder of fine stock, especially with respect to the males which are destined to cross with less highly-bred ewes, that, by a course of judicious feeding, he should impart to them that predominance of *size, force, vigour, and procreative power*, which would ensure their transmitting to their progeny their own type and quality. It is equally important to this end that the ram should be fully developed—have attained maturity (two years, or upwards), if possible, before he is admitted to ewes. It is on these perfectly intelligible grounds that I have, in my first paper, laid so much stress on keeping the rams apart from the flock and feeding them well; giving them, as part of their food, an allowance of corn and bran, as being a more highly azotised or concentrated albuminous food; and that I have urged the selection of rams possessing the qualities desirable to be transmitted.

On the part of the young ewe, or 'borrega,' it is equally important that she should have attained a certain maturity, to enable her to bear, without injury, the great vigour of the ram; to nourish and develop the foetus within her, and have a sufficiency of milk for her offspring when lambed. Not only would the immature ewe be unable to do justice to the begotten of a superior ram, but her own incomplete form would be stopped in its development, and she, and all her future offspring, would be far inferior to what they otherwise would have been.

In the Cabañas of the highest perfection in fineness, silkiness, and length of wool—a Prussian Silesian high-class Cabaña—the ewe is not allowed to take the ram before she is two years and a half old, and the ram is

not admitted to the ewe until he is three years old. I consider, however, that in this more genial climate—*cæteris paribus*—maturity is attained at an earlier age by several months; for as in vegetation a genial climate and higher temperature hastens the growth of a plant and ripens it, so is it also in animal life.

The reason why the results I have indicated above flow from too early connection of the sexes, is that in all nature a certain time—variable in each class and under different circumstances—is required for the development of the frame. Development is a gradual process of chemical combination and organic construction; and while these various changes and processes of building up the structure are going on, all the materials are in a more pliant form. Like the potter's clay, they are soft, impressionable, and ductile, and are all required to complete the work and harden it off. If, before this ripening and consolidation of the frame is complete, the powers of the animal are taxed for other purposes, and another life is given to the young ewe to maintain and form within herself, the means of her own development, the albuminous and the fatty matters, will be abstracted from her tender, ductile, immature body, to be used in the development of the foetus; and as there is thus a double call, and an insufficiency for the two purposes, both suffer. In like manner the male, until he has completed his growth, has nothing to spare; so that too early a call upon his procreative powers is an obstruction of the albuminous compounds which are required to build up his flesh, muscle, and strength. So great is this drain on the powers even of a mature ram during the season which he spends with the ewes, that although, by careful and liberal feeding, he may have stored up within him a reserve of substance and vigour, he will nevertheless suffer unless his feeding be

fully maintained. Indeed, to meet this drain, extra-careful and liberal feeding is advisable. A 'waste' is going on, and this 'waste' must be constantly replaced by supplying to the body that which it parts with in another form. As the ram at this period is restless and working, it is desirable to give him his food in a form easily and speedily eaten, as otherwise his restlessness might prevent his eating enough; and, at the same time, it would be well to make it more digestible and more easily assimilated, by crushing his maize more finely and adding a little barley, both softened with a little boiling water, sufficient to swell the grain slightly. The corn so softened should stand for two or three hours before feed-time, dry bran being added to the corn when cool.

A knowledge of the nutritive value of different foods is of importance to the breeder, as will be readily understood from the tables I have given.

If we take the analysis of alfalfa at its highest point of nutritive value, we see that it contains of albuminous compounds, i.e. strengthening and flesh-forming substances, 3.83 per cent., against 23.18 per cent. of fat-forming substances, as starch, sugar, wood-fibre, &c. The proportion here is as 1 to 6.

In corn, we find that of strengthening matters there are 13 per cent., against 69½ per cent. of fat-forming and husk, or more or less the proportion of 1 to 5½.

In bran, there are of strengthening matters, 14.9 per cent.; ditto of fat-forming and husk, 66.3 per cent., or more or less the proportion of 1 to 4½.

It is self-evident, that by the addition of from one half-pound to a pound and one half (according to size of animal and other requirements) of mixed corn and bran to his green food and hay, he receives a ration calculated to give him greater strength and vigour; and, while young and growing, greater means of development.

It will not be uninteresting to trace the conversion of food into the animal organism. Food, from the moment that it enters into the mouth, enters on the phases of conversion under the influence of chemical action. The secretions from the glands of the mouth and throat, known as saliva, mix with it in the course of the subdivision effected by mastication of the food. These secretions are alkaline, and act on the starch constituents of the food, effecting the first change or step in elaboration, by converting them into dextrine and sugar. The albuminous compounds of the food remain chemically unchanged, although mechanically prepared by subdivision, the result of mastication, for subsequent action. Alkaline secretions do not influence these compounds, which require the action of an acid. This awaits them in the acid secretions from the glands of the stomach, in the chyle, or gastric juice, through the instrumentality of which digestion is effected.

The digested food thence passes into alimentary canals, lined with absorbent glands, which take up the nutritive matters of the food, prepared respectively by the saliva and chyle.

Ramified in every direction, and in contact with these glands, is the complex system of blood-vessels, into which these nutritious juices enter as blood, and are conveyed through the great vein-trunks into the lungs, where, coming into contact with the oxygen of the atmosphere inhaled, combustion takes place; and this burnt, or oxidised blood, is forced into the arteries, and, conveyed by them through the system, becomes, under the so-called vital action, flesh, fat, tissue, bone, &c., &c. Every portion, every organ of the body, being endowed with the power of selection, absorbs its own constituents, which become elaborated into it, replacing the incessant waste

of substance resulting from action and life, and adding to the bulk of substance, flesh, or fat, any excess over such waste.

Should there be any deficiency in the component parts of food taken—a single item, mineral, albuminous, or hydro-carbonic, wanting, or deficient in quantity—the substance, or organ, of the body requiring such ingredient in excess of the quantity contained in the food would necessarily suffer, as its 'waste' would not be replaced, and uniform development would be impossible. Thus, in the absence of lime in the food, bone could not be formed; in the absence, or deficiency, of alkalies, the liquefaction of the blood would be impossible or defective; with a deficiency of starch, sugar, or oleaginous matter, fatty tissue could not be formed. On the same principle, *within limits*, we may graduate the proportions of food constituents so as to give special development and engender a special habit of body in animals; for instance, to produce a greater or less tendency to fatten, or to make beef or flesh; accommodating the mechanical treatment so that the health may not suffer; and, in order to promote the result aimed at, more or less exercise, shelter, or exposure are material influences, which the skilful breeder should know how to graduate to the proposed end.

Following out the subject of nutrition, or feeding, of animals of great value, whose perfection of type, special properties, and constitutional vigour are so intimately connected with it, we have next to indicate certain conditions of the natural and other pasture, under various circumstances, so that the high-caste breeder may supplement such fodder with other matters, when there is deficiency in any essential ingredient. It does not suffice that the animal is supplied with any given quantity of

food-matters ; but, as I have said, such food must be in fit condition and possess the right proportions, more or less, of feeding ingredients, to form, sustain, and renew every portion of the body, and to enable all the functions to be performed harmoniously, naturally, and with facility.

In the winter season, from the low temperature and feeble heat of the sun, the growth and organisation of herbage is in comparative abeyance. Owing to the non-concurrence of all the cosmic influences in the requisite degree, the winter herbage does not assimilate harmoniously the various elements of its organism, and it lacks the due proportions necessary for its complete development. It has an excess of water, and a deficiency of saccharine, or starchy elements, as also of the alkaline salts. It is deficient in nutritious properties generally. It is not fully organised, and, consequently, does not—taken as food—meet the requirements of the animal organism. Animals, therefore, fed exclusively on it, grow lean and weak. In a season of much rain and cold, these deficiencies in nutritious and mineral matters are augmented, and animals are affected with purging and other ailments. Low, banado-land herbage is particularly deficient at that season in alkalies and saccharine matters, by reason of its constant washing, and contains an excess of acids. To correct this, and prevent the purging of the sheep (or other animals), the use of salt—common or rock-salt—is desirable. In Europe the winter's grass is supplemented with turnips, mangold wurzel, and hay. These roots, containing large proportions of alkaline salts and saccharine matters, with good hay—that is, well-got hay—or even chopped straw, correct the excess of water and acids, and supply an organised matter ; and in good hay all the nutritious ingredients which constitute good

nourishing food are present. No flock of value, therefore, should be without a supply of hay.\* In the winter, they should never be turned out on the cold grass pasture in the morning before they have had their bite of hay ; and they should always have their ration of hay to come home to of an evening. The deficiency of the due proportions of nutritious ingredients in food has the effect of producing disease, and the defective organism of the food, in many instances, causes parasitical disease (Entozoa), which, according to the nature of the deficiency and consequent product, attacks different organs—worms in the intestines, leech in the liver, &c. This deadly plague, leech or fluke—‘Sobaipé,’ for instance—is a parasite produced in the sheep by their feeding over wet land on vegetable matter—in a state of fermentation, or partial decomposition, under the action of the sun’s rays—from which the alkaline salts, and sugars, have been largely abstracted by an access of water with which the ground has been long saturated, and in which the plant has been wholly or in part immersed, thus giving rise to a living organism on which the pupa fluke exists, which cannot exist when salt is present in a certain quantity. There is little doubt that all the varieties of Entozoa are generated from similar causes, i.e. a state of ‘matter’ conducive to the production of low organisms which are introduced with such matter into the higher organisms.

In the early spring, when there is rapid growth of vegetation—‘trefolium’ more especially—there is considerable danger from hove, blood-strike, vertigo, or apoplexy. The organisation of the vegetable has been too rapid to be perfect in all its parts ; hence it too readily ferments, and produces these evils. A morning’s feed

\* Turnips or chopped straw are not at present available in this country, their use being an ‘economic’ of advanced farming.

of hay obviates considerably the danger from this, and the use of salt is very beneficial.

In the summer, when the grasses have shed their seed, the dry leaves and seed-stems contain little nourishment. The albumen and starch have departed from them, as well as the alkalies, and thus they do not contain what is needed for the formation of blood. The water, likewise, has dried out of them. It is, therefore, necessary to supply these deficiencies by artificial food, otherwise the animal shrinks in flesh and fatty tissue. If there has been an abundant seeding of the grasses and trefolium—and these seeds, and the oleaginous seeds of the thistle, lie intermingled with the dried grasses—sheep will keep in fair condition, provided that they have sufficient water; but valuable animals should have a little aid from artificial grasses—alfalfa, in a green state. There can be no question of the advantages of giving such animals a little green food in the cool of the evening. During the long, hot days, with all the insect annoyances, animals cannot feed. They collect in groups, seeking shade from one another; and it can be well conceived how grateful a bite of cool green fodder must be to them in the evenings. If they are 'shedded,' put into 'galpones,' or sheds, during the heat of the day, a bite of green fodder will be equally grateful to them at that time. The 'high-caste' breeder is amply repaid for these attentions to the comfort and requirements of his stock, as he will have little sickness and a much higher development in his animals.

The different requirements of young and mature animals in their food-matters, is also a point of mark with the 'high-caste,' or, indeed, with any breeder. In the young and growing animal 'construction' bears a much greater proportion to the waste than in mature animals. There is

a quicker circulation, and a more rapid oxidation is needed. The albuminous compounds of the food are required to be in a condition easily and speedily assimilable; and there is needed, to meet the rapid oxidation of the blood, that predominance of the saccharine element which exists in green, succulent herbage over that which is passing into ripeness and seed; and, more especially, that which is over-ripe, and from which the saccharine and alkaline elements have, in a great measure, departed, and in which the woody fibres—the non-digestible matters—prevail.

The action of 'good feeding' on the wool can also be understood by a reference to the foregoing tables; for we see in the 'ashes' of wool the minerals of the food which the animal eats, and in the 'substance,' a very high proportion of nitrogenous and sulphurous compounds.

## II.

I will now proceed to make a few remarks and suggestions on important points in management.

The selection of the most desirable season for the lambing must be determined by the more or less advantageous condition of the herbage at certain periods of the year, to suit the dam and her offspring at the time of suckling and weaning.

First: At the time of impregnation, the ewe should be in good condition,—the result of good, succulent food; she should be 'sappy,' and prone to conceive.

Second: At the time of lambing there should be rich, succulent grass, in order that her food may be easily converted into milk.

Third: At the time of weaning there should be rich,

nutritious grass, to compensate to the lamb the loss of his dam's milk.

The extremes of cold and heat should be carefully avoided as periods for lambing. A lamb should be well-grown and strong before he has to face the heats of summer, which wither and burn up everything, vegetable and animal. Little or no nutriment remains in dried grasses. Their albumen, alkalies, and saccharine matters have passed into their seeds, or descended into the earth ; or are extracted by sun and rain ; and they are, consequently, particularly unfit for young stock.

The season of the year when the first proposition can be best realised is that when all nature is springing, and animal life animated with the instinct of propagation—the spring of the year. I should, all things considered, select the months of October and November as the most suitable for putting the rams to the ewes. If the rams are in high condition (as they ought to be), five weeks will be sufficient for ' tipping ' every ewe in the flock.

The ewes will consequently lamb in the months of March and April (in cold districts the lambing may advantageously come in the earlier month), when the autumn grass is abundant and the weather still genial, and free from any excessive heats. The lambs will become strong and hardy before the winter sets in ; and if the ewes are kept in good condition by a daily ration of hay, in addition to the grazing, and a little corn for the highest-bred ones, coupled with the requisite protection, there will be no fear of the lambs suffering.

The weaning time will fall in September, and the lambs will have the rich, succulent spring grass to supply the place of their dams' milk, and will be well-grown and strong before the summer heats come on ; the ewes will have time to accumulate strength and condition by the

time of their next impregnation ; and, I believe, that under no other arrangement could so favourable a combination of circumstances be obtained.

### III.

Thermal influences, and their regulation, are not less important matters. For this regulation the mean temperature of a locality, or climate, should be taken into account, together with the extremes of thermal variation ; and it is essential to have a right understanding of their influences.

There must be a certain heat diffused throughout the body, or the vital action is in abeyance, or ceases, and reconstruction, or development, cannot proceed. This heat is generated, as we have explained, by the combustion of the hydro-carbons of the food taken ; and the quantity of such constituents of the food required to maintain this heat is determined by the external temperature—the temperature of the surrounding atmosphere.

The action of external cold reduces the heat of the body, on the principle of transmission, or evolution, of heat—the equalising of the temperatures of substances and elements in contact. At a low atmospheric temperature, the superficial parts of the body part with their heat more rapidly than it can be generated and diffused under the action of combustion of a given quantity of carbonaceous matter taken in the food. The effect of cold, when below a certain degree, is to contract the parts, contract the blood-vessels, and force back the blood ; hence it impedes the process of formation, or reconstruction, which is dependent for its realisation on the blood,

and in a certain temperature being maintained in all the parts. A larger amount of carbonaceous food, within limits, being supplied, the equilibrium of evolution of heat and its generation are more nearly maintained.

Shelter, producing a warmer surrounding atmosphere, and non-conductors used as covering, diminish the necessity for an increased quantity of heat-giving food, and are, in effect, equivalent to a certain amount of food. The absence of shelter and external warmth cannot, however, be wholly compensated by food. An unusual degree of cold inevitably produces its effect. The skin, and parts adjacent, will always be affected, as will also the natural covering (hair, or wool) of animals. The contraction of the hide and inner skin, from which the wool springs and draws the means of growth, restricts the passage into the wool of the elements of its growth and diminishes the supply of yolk (which is its natural protection and softener), and it becomes wanting in texture and elasticity. In like manner, the wool suffers from the effect of wet. The yolk is not of the wool, but is provided as its protection. Its composition is oleaginous and alkaline ; mainly, animal grease and compounds of potash ; forming, in fact, a true soap, which is washed away by rain, leaving the wool comparatively dry and harsh.

The action of external heat, greater than the normal heat of the blood and body, prevents the evolution of the heat generated in the body ; it therefore disarranges the equilibrium, which is needful for health, between the generation and evolution of the vital heat, producing an excessive expansion, or relaxation, an excess of cutaneous secretions—to meet which a plentiful supply of water is requisite—a waste of the juices and of the tissues. General relaxation and debility is the consequence, or the blood becomes fevered, and its fatty and albuminous

elements have a tendency to lose, to a certain extent, their individuality.

It is an object with the high-class breeder to protect his sheep from both extremes; and, I have already stated, to do this to the greatest nicety the variations and mean temperature of a climate must be taken into account. Here in the River Plate, we have a very temperate heat during the greater portion of the year. During the winter months, though raw and bleak, we have rarely any continuance of severe cold at all comparable to the cold of England, North Germany, and France—the cold here rarely exceeding a hoar-frost, which disappears with the morning sun. On the other hand, the summer heats range considerably higher, frequently reaching, and ruling for many days together, 90° to 95° Fahr. in the shade, and from 100° to 125° Fahr. in the sun. Under these circumstances, a slight protection from cold, and an airy shade, or protection, against the summer heats, are desirable, with, of course, an efficient protection against wet. The close housing required to meet the severe cold which prevails for months in Great Britain, North Germany, and the North of France, is quite unnecessary and *undesirable* here, even in the winter; and such houses would be intolerable during the summer months, both from the heat and the effluvia.

Directly connected with this is the subject of ventilation. The assimilative and formative process is sensibly affected by it. As I have stated, the food taken by the animal is elaborated into the 'organism' through the blood, and this is effected through the oxidation of the blood. The oxygen of the atmosphere, being inhaled into the lungs, comes into contact with the blood, and is taken up by it, effecting a combustion of the hydro-

carbons of the food, by means of which animal heat is generated ; and through its agency the machinery of elaboration (the manufacture of flesh, fat, &c.) is kept in operation. If the supply of oxygen be stopped, the fire goes out and the machinery ceases to work. Diminish the supply of oxygen, and cause this diminished supply to enter into the lungs, associated with deadly and noxious vapours, and the work is imperfectly performed, and disease and wasting ensue.

The vapours generated in a close shed or house in which animals are kept are carbonic acid gas, sulphuretted hydrogen, and ammoniacal vapours, which have the effect of thinning the blood and paralysing its circulation ; while the deficiency of oxygen leaves unburnt in the blood fatty globules, which obstruct the circulation, and to a certain extent poison, as it were, the system, by clogging it with unassimilated matter and depriving it of all that tone or vigour of life which constitutes health and development.

The want of cleanliness, as well as of fresh air, with its life-spring of oxygen, is of very serious prejudice to health. I may here call attention to the very grave evil which appears to have taken chronic possession of many flocks, from which the 'galpon'—the shedded sheep of many, if not most, of our first-class sheep-breeders—are never free, viz. the scab ; and more especially those of German and Merino blood. There is no doubt in my own mind that, from the habit of excessive confinement, high feeding, dirt, and impure atmosphere combined, the tendency has become chronic in their blood ; and a total change of system, and much care, may be required to eradicate it.

The course which I would recommend is, in the first place, to select a *genial* period of the year, when sweet

succulent grass is abundant. Shear the sheep, 'dip' them thoroughly in Demarchi's preparation of sulphur and tobacco, or other similar 'dip,' and remove them at once to new, clean ground, which would have to be reserved and fenced off in anticipation of this. In this clean 'potrero' I should leave them day and night, or, if the situation was inconvenient, bring them into a smaller 'potrero'—not a 'corral'—at night. They should have pure water to drink at discretion, and rock-salt to lick. They should be driven under shade during the extreme heat of the sun. While the sheep were getting thus a two, three, or four months' run—effecting a change in their whole system and purifying their blood, all sheds, racks, and every portion of the 'plant' where they had been kept should undergo a thorough cleaning and purifying. I would not allow any sheep to enter this 'plant' or ground for some months.

I should certainly allow sheep to run in the fresh air as much as possible. I have no doubt, from my own experience, that much greater vigour is attained by animals that are as much in the open air as is practicable, without exposure to extremes of heat or inclemencies of weather. There are few days in the spring, autumn, and winter when the sheep may not be out grazing the greater part of the day; and in the summer, they may be out early in the morning and in the cool of the evening, with decided advantage; especially as reproducers destined for the regeneration of the flocks of the country, inasmuch as they need to be in harmony with surrounding conditions of climate, &c. There is also an economy in the practice. The sheep, however, should not have an opportunity of ranging over too great an extent of ground.

## IV.

With a knowledge of thermal and atmospheric influences, we can rightly estimate the immense importance of a judicious arrangement and ventilation of the buildings, or 'galpones,' where sheep are housed. An ill-contrived 'galpon' will suffice to mar the entire prospect, and defeat every attempt of the breeder. Packed in a close 'galpon,' the sheep soon consume the oxygen, and fill the place with the carbonic acid gas which they exhale—a vapour fatal to health and, when it exceeds a certain quantity, to life. Add to this (should the 'galpon' not be kept clean) the sulphuretted hydrogen, and other foul vapours which are generated; then, suppose these sheep, after passing a night in this heated and foul atmosphere, turned out to encounter the chill of a winter's morning, and we need no fuller catalogue of fatal evils. Under such circumstances, the benefits of the best of blood are lost; the circulation of the blood is sluggish, its oxidation is imperfect, and the process of formation (the vital action) is feeble, the flesh flabby, and the wool deficient in texture, elasticity, and quantity. Skin, lung, and bronchial diseases become chronic, and the progeny of such sheep will infallibly degenerate, and be afflicted with the chronic state of sarna noticeable in many flocks.

The construction of sheds, or 'galpones,' should be regulated according to the number of sheep to be housed. For a flock of from one, two, to three hundred and upwards, I consider the best form of protection to be a long shed, open in its whole front, built at the south side of a large 'corral,' or small paddock, with the open front facing the north. Brick and mortar 'galpones' I consider the very worst possible; I should be sorry to

house sheep that I valued in such an one, in a climate such as this.

I am convinced that a simple shed of pine boards, with board, shingle, or thatched roof, is the best for these climates. The boarding at the back should not come down to the ground. A few inches should be left between the lower plank and the flooring, and a space of several inches should intervene between the upper plank and the roof. Large openings, with shutters to raise up or let down, should be placed in both gables, so as to ensure the free circulation of air. The best flooring is that of well-laid brick, with a sufficient fall, or of slats of wood,\* and it should be kept clean. The accumulation of litter and dung permitted in many establishments is decidedly objectionable, as being productive of skin diseases, lice, fly-blows, and foot-rot, besides creating exhalations unquestionably unwholesome.

The sheep should be free to lie in the shed, or 'corral,' at will, stormy wet nights excepted; and for the purpose of shutting them in on such occasions, movable open hurdles should be used. Wet should be avoided, as prejudicial to health and to the wool.

Where a few choice rams, or ewes, are 'stalled,' a closed 'galpon' is necessary. This, likewise, should be of plank, and bricked floor, or wood slats, with a fall to both sides. A space of three to five inches should intervene between the ground and planking, and of eight to twelve inches all round between the top planks and the roof. Half an inch to an inch should be left between each plank, and there should be large openings with 'flap'-shutters in the gables, to be shut or opened as required. The bedding should be taken out and dried daily, and the

\* Floors of soil, if there is bedding support, or burnt clay and sand, are also good.

clean portion returned, with the addition of a little fresh litter, after the stalls have been well brushed out and dried. If wood slats or grating be used, no litter is needed.

Such a shed would be sufficiently warm in the winter with the shutters down, and cool in the summer with the shutters up. If the closed shed is large, there should be ventilators in the roof from end to end.

By reference to the table of the ash of the blood of sheep, it will be observed that 66½ per cent. of that ash is common salt. Alkaline salts are essential to its liquefaction. Lumps of rock-salt should, therefore, be placed in the 'corrals,' or sheds, so that sheep may have free access to them. Salt is also a preventive against skin diseases, leech, and hove ('sobaipé' and 'empasto'), and it renders both the male and female more fruitful. Cleanliness in the food, feeding troughs, and water-vessels (bebidas), and pure water, are of the highest importance.

The plan of making a loft in the 'galpon' or sheep-house, wherein to store corn and fodder, is extremely objectionable. On the one hand, the provender so stored becomes more or less contaminated with the exhalations from below, and on the other hand the lower part of the building is rendered close and unwholesome.

## V.

The physiological question of the advantages or disadvantages of in and out-breeding respectively, that is, of breeding from near relations, or from perfectly distinct or far removed branches of families, is one of great importance, and much has been written upon it. The consideration of expediency as to the crossing of two distinct breeds or races for specific objects, or with ulterior views, though

apart from the question itself, has its connection with it. There are numerous advocates of both systems, and all claim to have met with success in the prosecution of each principle, and therefore recommend the adoption of the practice which they believe to be the best. I am free to admit that there have been successful breeders on both principles, followed out consistently over a considerable period of time and through many generations. The fact of success under both systems goes to demonstrate that there was a difference of circumstances and objects, and that there can therefore be no arbitrary rule applicable to all cases.

The principle of 'out-breeding' is accepted in these countries generally as the acme of sound practice ; and it is believed by many that if the rams of flocks are changed every two or three years, little else is required. To such an extent is this idea carried in some cases that the veriest mongrels are produced ; and I have even known cross-bred rams of Negretti, Saxony, Rambouillet, and long-woolled British extraction, all running in the same flock at the same time, and changed for an equally mongrel lot—picked up here and there and everywhere—after two or three years, under the impression that the 'principle' of 'out-breeding' was being carried out.

My own experience goes to show that 'out-breeding,' as a rule, is destructive to uniformity of type. A judicious 'out'-cross is, under many circumstances, followed by good results in flocks in general, and even in the flocks of high-caste ; but such 'out'-cross must be made with sheep of the same type, and of the same race, if purity of blood and high quality are to be preserved. All successful founders of breeds of improved sheep have made the distinctive characteristics of their stock by means of 'in'-breeding, frequently of the very closest. I regard

selection and 'in'-breeding, especially the 'in'-breeding of rams, one of the greatest 'powers' in the hands of a skilful breeder. There can be no doubt that defects of constitution, or type, are strengthened and perpetuated by 'in'-breeding, and that skilful selection thus becomes more necessary. On the other hand, good points and special type are, undoubtedly, transmitted with greater certainty and fixity when 'in'-breeding is the rule, and an out-cross, not too far removed, the exception. An 'out'-cross is desirable when there is any manifestation of failing vigour, or other degeneracy, or when any animals of one branch of a family have attained, by reason of favourable combinations of circumstances, higher and better quality than other branches. There can be no question that, in such case, the selection of the breeder should fall on the most perfect and vigorous ram.

When failure, or a certain degeneracy, has resulted from 'in'-breeding, I do not hesitate to say that it has been rather the fault or error of the breeder than of the principle. It will be found that, in the majority of such cases, the breeder had directed his attention to certain qualities which he sought to advance, and in so doing lost sight, in some degree, of other qualities which were essential to the perfect animal. The result has been that one special quality, engrossing the attention of the breeder, has dominated, causing constitutional weakness. Take the instance of early excessive fatting qualities, which, if carried beyond a certain point, must result in weakening the procreative power (hence so many barren cows and ewes, as well as some unfruitful rams and bulls), and in the diminution of muscle, bone, and general vigour, to a degree prejudicial to a race, and to the transmission of true quality, the end ultimately defeating the primary object. The 'out'-cross, to repair decreasing vigour

becomes a necessity. It is required to restore the equilibrium of healthy development. 'In'-breeding carried beyond a certain limit would of itself produce an utter degeneracy; but this danger in sheep-breeding is, under intelligent direction, remote, except when a small number are kept; as, by the rule of selection, the most perfect rams should always be destined to propagate the race determinately. When the stock comprises several hundreds of ewes, several families may be maintained in different grades of relationship, and the probability is that the best rams result in different years from different branches, while different combinations of these branches, effected in the course of selection, may throw out salient points desirable to be availed of, giving occasion for ample out-crossing.

The object of high-caste breeding is to produce rams to raise the type, and generally to improve the stock of the country, and to create new varieties by crossing one variety or race on another. In these operations it must be borne in mind that there is something more than an 'out'-cross—it is a cross between different races or distinct varieties: and as this—*i.e.* the improvement and modification of races, or the creation of new types or varieties—is done through the dominant procreative power of the males of the superior caste, it is very desirable that the power of transmitting type should exist in the males in the highest degree—a result of 'high' or 'in'-breeding. It is therefore of the greatest importance to the sheep-farmer and breeder that the rams which he uses, with the object of improving his general stock, should be 'in'-bred. I have had signal success by adopting this practice; and I have extended the practice with the like success with the ewe progeny of these 'in'-bred rams—putting rams to them closely allied to their

sires, and even the same sires in special cases, for instance when a decided out-cross has preceded.

In their practice many, if not most, sheep-farmers commit one of the greatest of errors. They have a vague idea of improving their stock and, with that end in view, purchase one, two, or three fine rams. These they put into one of their flocks, or with a number of ewes selected from their flocks. The half-bred male produce of these they use in the other flocks, and even in the same flock, expecting, of course, brilliant results, and are grievously disappointed at finding they make no progress, or, at all events, very little. It is a recognised fact among breeders that a farmer who uses his half-bred rams in his flock commits a fatal error. The higher blood of the sires of these half-bred rams is always dominated (*vencido*) by the blood of the dams in the progeny resulting from the ewes of the flock and the half-bred rams. Half-bred rams have *no* fixity of type ; whereas, the ewes of any race, or variety, though it may be ever so inferior, have such fixity, even if it be a fixity of bad quality, and that fixity will always prevail over anything that is half-bred in rams. To refine, or improve, simply means to dominate inferior blood and quality by higher blood and higher quality, in superior force.

## VI.

The foregoing explanations will suffice to show that the man who purposed to form and carry on a high-bred sheep establishment has no light task before him ; that mind and will must be directed to the undertaking ; that there is no detail unworthy of his close attention ; that the

details mentioned herein, with very many others, which will continually present themselves in the course of his undertaking, cannot be neglected ; that he must be ever observant, and ever prepared to meet all contingencies ; that his workmen must be intelligent, trustworthy, and orderly ; and, finally, that he must be rigid in the exactation of the most systematic management.

The man who is not prepared to meet all these requirements had better leave high-caste breeding alone. On the other hand, he who will do what is necessary and breed from and acclimatise the best blood, will succeed to his own satisfaction, and prove a great benefactor to his country.

A great expense and much thoughtful care is necessarily entailed in the production of superior animals ; and there will naturally arise a fear that in this country, where the general habit is to go in for *lo barato* (the cheap), adequate prices might not be obtained. But it may be taken for granted that many among the wealthy and intelligent sheep-farmers are sufficiently alive to their own interests to be ready and willing to pay a good price for superior stock. Indeed, we often see in the auction sales of imported sheep (in the absence of sufficiently thoroughly good home-bred stock) animals of questionable blood, inferior size, and in every respect ill calculated to benefit our flocks in any appreciable degree, sold at prices far above their intrinsic value for the purposes for which they are destined. In fact, it has been from the use of these imported animals (either continued under an exotic treatment while their progeny returned to a state of nature in the general flocks, or themselves turned out with the flocks to wear out their energies under conditions totally foreign to their

habit), that so much degeneracy and disappointment have resulted.

Our climate is admirably adapted to the production of the highest-class sheep ; and I know that results have been obtained by one or two, under proper management, which leave little or nothing to be desired, and that there are rams bred in the country which far exceed anything imported. I see no reason, why in a few years, we should not have a breed of sheep *extensively established in the country*, yielding a product that may compare and compete in *general usefulness* with any produced in other countries. I trust that the day is not far distant when a flock of sheep which yields less than 6lbs. to 7lbs. of wool per head will be a rare exception, and I likewise feel assured that the day is close at hand when there will be more than one flock of high-caste breeding ewes averaging 10lbs. to 12lbs. of wool each per fleece, and rams bred from them yielding 18lbs. to 22lbs. of wool each.

## VII.

While individuals contribute to the general good by their intelligent management and well-directed employment of capital in the improvement of stock, they are entitled to something like systematic protection ; a protection not only direct as regards the safe possession of their property, but considerate and fostering, because they in fact determine the future of the country.

Such protection should be extended by the authorities of all grades, and by the population at large. The good sense and correct feeling of neighbours cannot always be counted on, whether from their incapacity to understand the good that is growing up at their side, or from less

excusable causes. In such case, the paternal care of the authorities should ever be ready to protect individual rights and the good work in which the breeders are engaged.

The individual loss and the national loss accruing from any direct or indirect violation of the rights of property, by which the labour of years might be sacrificed, can hardly be over-estimated. Apart from the direct loss by taking away stock under any pretext whatever, or by theft, there is the indirect loss through the contamination of the flocks, by the mixture of inferior stock, so frequent when so little respect is paid to limits, or even fences, and through infection disease, scab, and the like. Could anything be more disheartening to the high-caste breeder, as well as serious in its consequences to the progress of a great national industry, than an irruption of an ordinary or inferior flock with its rams into the choice ewe flock of a high-caste breeder? And if to this we add that the scabby flock of a neighbour is sharing the camps, depositing infection to be carried by the winds into the neighbours' 'potreros,' not only on the herbage but on every post and every wire, by rubbing their scabby bodies against them, and there leaving the scabbed wool, surely he might say that there is little encouragement held out for, and little hope of carrying out, improvement! Yet these are occurrences to which we are constantly subjected. Our pens are invaded by neighbours' dogs, our 'potreros' by neighbours' rams and flocks, or an unscrupulous neighbour will lay his scabby flock against, or near to, the 'potreros,' the grazing ground of the choice rams, to entice them out of the bounds that they may 'encastar' with his sheep and return to contaminate the rest with the scab. I may suggest, for the consideration of the governing powers

and the public, the question whether or not the law as it stands, or as it is understood, provides redress or compensation commensurate with the injury, or whether or not any redress or compensation is to be had, and if to be had, at what cost, and with what trammels and difficulties?

The high-caste breeder is not alone entitled to protection and justice, although in his case protection is more especially called for. What flock-master can hope to have a sound flock of sheep so long as his neighbours are entitled to keep infected sheep on all sides of him? The serious ravages of the scab are notorious, and are spreading to such an extent as to give just cause for alarm; but there is no law, and no remedy.

It is absolutely necessary that something should be done to check the spread of this disease, and protect the flock-masters who expend money in the care of, and, when necessary, in curing, their sheep. I may cite the example of Australia in this matter.

With the view of checking and keeping down the scab, the most stringent laws were enacted, compelling the flock-masters to cure, *i.e.* to dip their sheep, under penalty of heavy fines, and even, at the requisition of neighbours, I believe, of killing and burning incurable flocks. The travelling of infected flocks was and is prohibited; and I am informed that if anyone attempts to cross the lands of a sheep-farmer with a drove of infected sheep, such sheep-farmer can compel the halt of the drove, and even the slaughter and burning of the same. Such is the paternal and wise protection accorded by law to a great national industry, rescuing it from inevitable ruin.

To numbers of flock-masters I have put the question (well knowing the answer that would be given, but wishing

to strengthen my representation of the evils accruing by the testimony of numbers), 'Why do you not dip your sheep when you experience so serious a loss year by year?' The invariable answer is, 'Of what use would it be? All my neighbours have scab; and if they had it not, any drover can cross my "camps" with infected sheep, as is almost weekly the case, strewing my lands with the falling scabbed wool, and, in some instances, with the carcasses of the sheep which, eaten up by the disease, become too weak to travel and die on the road.'

As an instance of this, I may quote an occurrence of which a gentleman complained to me but a few weeks ago. A neighbour of his bought, from an establishment some distance outside of him, a flock of excessively scabby sheep. These he purchased for a mere nominal sum, calculating that a very large portion of them would not reach their destination. With these sheep he crossed my friend's lands, and the line of their passage was strewn with the dead and the dying; and, as he said, 'Of what use would it be for me to "dip?" my lands are infected; the remnants of this diseased flock are located now at my very door, and I have no redress!'

This may be an extreme case; but it suffices to show that legislation is required in the interest of all; for an extreme case proves the license to injure. It is of vital importance to this great national industry that well-digested and stringent laws should be enacted for the protection of individuals, and at the same time for the protection and preservation of the most important and valuable interest of the country.

The inefficiency of the rural law, or its operation in its bearings on this great industry, and the requirements that have grown and are still growing with it, are

natural consequences of its rapid development. It has outstripped all precedents of campo regulations, as well as the ideas or conceptions of the great majority of the population. My strictures imply nothing beyond this, and are made with the object of calling attention to a pressing necessity which it is of importance to meet suitably.

## PART V.

OBSERVATIONS ON THE UTILISATION OF RIVER PLATE  
BEEF.

## I.

THERE is a subject in connection with one of the great rural interests of the Rio de la Plata which is attracting much attention both in the country and in Europe, more especially in Great Britain.

The vast herds of cattle that graze on our plains are pointed to as an inexhaustible source of food. Here, in the River Plate, the utilisation of the meat, or its nutritious matter, from the hundreds of thousands of the animals annually slaughtered—the food part of most of which is wholly lost, yielding little or nothing to the breeder—is a matter which essentially touches the interests of the country at large as well as of individuals, and it is anxiously canvassed in all circles. In England, with increasing scarcity and rising prices of meat, there is naturally a longing and expectant look cast towards this land of cattle and beef; and persevering efforts are being made in numerous districts to introduce for consumption South American salt-beef. These efforts are only partially—and even in such cases it would seem only transitorily—successful. When there are craving multitudes able to pay a fair price for the nutritious food they require—viz.

flesh meat—which is annually becoming a greater necessity with all classes, not only from habit, but also from an absolute want to sustain the extraordinary wear and tear to which the system is subjected by quickened thought and accelerated movement, and they decline to avail themselves of that which is urged upon them as ‘the thing’ which they require, as the ‘wholesome beef of the herds untainted by artificial feeding that feed on virgin pastures’—it may suggest itself to thoughtful minds that there must be a cause for its rejection. Is it really what it is represented to be? Does the fact that the cattle roam almost in their naturally wild state over vast plains suffice to make the beef especially good, or even good at all? And is the expectation well founded that this beef can, by any and many processes, be preserved good and wholesome?

In another paper, I have described the habits and treatment of these cattle, as also the lands and pastureage on which they feed, and the manner in which they are usually slaughtered.

During several years my attention has been more or less directed to this subject, as a matter of general interest rather than with any immediate purpose, but still with the idea that information obtained on so manifestly important a matter would prove available and practically useful.

With this view I have sought and noted matter bearing on the subject in the works of authoritics of the highest standing, more especially in those of Dr. Carpenter (Carpenter’s ‘Physiology’) and Baron Liebig’s ‘Letters on Chemistry, Physiology, Dietetics,’ &c.; the latter work being but recently published (1859), when the subject presented itself to my consideration.

It became evident to me on studying these and other

works, that there were many considerations and conditions to be taken into account ; that it was not a matter to be resolved by process alone ; that a little more or less of salt or other antiseptic, or one or other method of using the same, or of packing, &c. would not solve the question of the utilisation of our beef. It became clear to me that the habits of the cattle, their precarious supplies of food and water, the excitement of parting out, the heat and the thirst, the storm and the cold (as might be) to which they were exposed in long travelling (extended often to sixty, eighty, or a hundred leagues), the mode of slaughter and butchering, and many other matters or conditions, must necessarily have an influence which could not be counteracted by a mere process.

I have known a variety of experiments made, and processes tried, and many modes of shipment ; I have heard and read of sanguine expectations, and even favourable reports, some of which have appeared under sanction of high authority—one no less than the ‘Lancet,’ but knowing well the cattle of this country, their habits and condition, and the system followed with respect to them, as also the methods resorted to with the object of preserving the beef, I have held, and do hold, the opinion that by no process of salting or curing can the beef of the cattle, in the condition in which they are as a rule brought to the slaughter, be made a desirable food.

Admitting that certain sample shipments have been sound and comparatively good, an infinitely greater proportion have been unsound and bad ; and I hold *à priori* that the prohibition of the sale of South American beef, some short time ago, by the Sanitary Board in England, was well considered and well founded. When sound beef has arrived in England, it has been made from animals in an exceptional condition, and these exceptions

go to prove the rule which I desire to inculcate for the good of producers, shippers, and consumers.

The reason of my belief that a sound nutritious food cannot be obtained by any process of salting or curing the flesh of the unfed and 'driven' cattle of this country is simply, that the means taken to preserve the beef are exactly those which most surely, in the state of the cattle, would deprive it of the greater part of its nutriment. Salt is a powerful solvent of meat juices (this power existing in the acid of the salt—*i.e.* muriatic acid—salt being muriate of soda, or chlorine of sodium, of which more anon), and it is in the juices or soluble substances (albumen, fibrine, crystallisable and non-crystallisable organic principles and salts, &c.) of meat that all the nutriment exists. Water will also, and unaided, extract the nutritious matters of meat. The most accurate experiments have been made to determine these points, and therefore I need merely state the facts. When lean meat is subjected to the action of salt, the deliquescent properties of the salt cause it to attract the juices of the meat, and a brine is formed, which runs from the meat. This liquid which is thus extracted from the meat, together with the salt, contains the mineral basis of the meat, its phosphoric acid, potash, &c. and its albuminous matters, together with its peculiarly vivifying principles, *kreatine*, *kreatinine*, and *sarcin*; consequently, in the one sense in which these matters are abstracted from the meat, so its fitness for food is diminished, and it is impossible to salt lean meat without taking from it a very large portion of its nutriment. All housewives know that meat in certain conditions does not, what they call, 'take the salt'; and the meaning of this is simply that the meat yields up its nutriment to the action of the salt, and that it drains away with a portion of that salt. Meat to 'take the salt'

must be exceedingly firm, and highly fed with food rich in nitrogenous or albuminous compounds, so that the like compounds in the beef (or other meat) being solidly packed in its substance, resist the solvent action of the salt, and by consequence a larger portion of nutriment remains in it. There is another condition in highly-fed meat favourable to this, viz. its solid fat, fat which is in solid layers on the flesh and also veined through the flesh: to this fat the salt adheres, or combines with it, and its antiseptic properties act, while its solvent action is restricted or restrained by these fatty veinings.

This property of veined or mixed flesh in which the fat and the lean are intermingled throughout, is a condition of well-bred animals—animals bred for beef purposes and domesticated. Cattle of wild habits, constantly in motion, and getting unequal and irregular feeding, both as regards quantity and quality of food, can never produce this condition of meat, or its richness and flavour. It is an hereditary quality engendered by feeding, selection, and domesticity, by which, also, an even growth of parts and large fleshy development is made a habit—a fixed hereditary habit so long as the conditions which created it are maintained. On the other hand, constant roaming over great distances in search of food and water engenders a lean habit of body, as there is a continuous waste which, more or less, equalises the replacement effected by the food, admitting of small accession of bulk in the flesh. At many seasons of the year, when the herbage is in its less nutritious stages, there is a positive diminution in bulk and depth of flesh; and when herbage is in abundance, and in that stage of growth when its fattening properties prevail, the fatty accumulations are more rapid than the flesh formations, and the fat is in consequence deposited in parts internal, around the

kidneys and viscera ; there is little external layering of fat, and little or no marking or veining of the flesh with fatty matter.

Animals which have been driven or subjected to considerable fear and agitation before being killed, have their whole flesh relaxed ; their albuminous juices are in an actual state of dissolution or waste. The saccharine element is in a state of transition into fat, and the fat itself is in a peculiar condition : it is softened or dissolved—wasting—and neither flesh nor fat will, to use the homely expression, ‘take the salt.’

Herein are involved highly interesting physiological laws, which it is convenient to define in a few propositions, so as to render my deductions more clear.

‘Organisation’ *i.e.* the construction or ‘laying on’ of flesh, is the result of food taken. ‘Organisation’ is the storing up of force. There is a latent force in all substances. The latent force of vegetable substances taken by an animal as food passes into the flesh, muscle, &c. formed by their assimilation, and endows the animal with the power of exercising force in proportion to the store accumulated.

This store of latent force can either be expended by effort, or it can be transferred to other and higher organisms, as food of a highly nutrient or azotized quality.

Force dissipated or expended by exercise passes into other elements ; and organs which have exercised ‘force’ to any given degree cannot again exercise an equal amount until that which has been expended has been restored by an accumulation of fresh elements. Physical effort, the efforts or impressions of the mind in man, sensibilities in animals, equally result in an expenditure of force ; and this having taken place in the case of an

animal, its flesh has, in a like degree, parted with its nutritious power; such power and the capacity for effort being identical.

The 'secretions' of the body, and the diminution of substance effected by physical or mental effort, are the result of a positive decay or decomposition of the various parts; and this continuous waste of substance, and its replacement through the instrumentality of food, is an absolute condition of animal life. Hence long travelling, anxiety, and loss of rest materially reduce the substance of the body; and unless there is a continual and sufficient replacement of that substance in the form of nutritious food (with time for its assimilation into the organism), the decomposition or waste of substance is such that, in a short time, there remains little else but the 'fibre' of flesh, all the 'nitrogenous' and all the hydro-carbon substances being consumed in the efforts made by the animal, and dissipated as gases, or passed off as secretions. Moreover, this general decomposition (or combustion) having set in, it would be vain to hope to arrest it by any process. Hence the reason why so much of the beef which has been shipped from time to time has been found bad, or become bad as soon as the oxygen of the atmosphere has had access to it. Close packing, hermetical sealing, &c. suspend this decomposition, but do not stop it.

Anyone knowing these facts, and the condition of our cattle in general, how they are brought to the slaughter, how they are killed, the semi-wild habits of the animals, and their excitement on the approach of man, can well understand that their beef cannot be nutritious, and cannot be salted without parting with by far the greater portion of such nutriment as it contains, and becoming almost valueless as food, if not altogether unwholesome. It is

well known that the fibre of meat—that which is left after the juices are withdrawn—has no sustenance in it. So loosely is the nutritious matter—the juice of meat—held in the substance of our beef, that no hash, stew, or other similar dish can be made out of it at all palatable. The meat itself, in all such dishes, is hard and tasteless—it is little more than meat fibre.

Pure cold water will withdraw all the nutriment from the lean of any meat. If lean meat is cut up into pieces and laid in a vessel with cold water, and allowed to remain for a short time, it will yield to the water the whole of its minerals, salts, crystallisable substances, and albuminous compounds, that is, the whole of its nutritive and constructive matter, and the solid remains will be indigestible, innutritious fibre. It is therefore clear that if meat of animals in the condition of our cattle is immersed in a brine, in which salt and water (a double solvent power) is at work, all vestige of nutriment will pass from the meat to the brine, and that, by consequence, such a method is, and will be, wholly impracticable until means are devised to feed our cattle. Even the superior salt-junk of Europe, if used for any length of time without acid, sugar, fruits, and vegetables, will produce scurvy, not by reason of the salt, but by reason of the deficiency of potash, phosphoric acid, and albumen.

There are means by which elements may be partially retained: thus, the use of lime in the preparation of meat will cause the retention of phosphoric acid by rendering it less soluble. Subjecting meat to a certain heat— $133^{\circ}$  to  $158^{\circ}$  Fahr.—will cause coagulum of the albumen (the degree of coagulation being in relation to the heat) and render it less soluble; but these methods are partial, imperfect, and in some cases expensive, and less likely to succeed with ill-fed than with well-fed meat.

To me it is perfectly clear that we must either feed our animals (such as are destined for the butcher, and animals of a superior and beef-making breed) up to the mark which will admit of their meat 'taking the salt,' or we must look out for some other process by which the nutriment contained in their flesh may be made available for export.

## II.

So great is the importance of the utilisation of our beef, both to this country and to others, that new projects are constantly started, new theories propounded, and numerous experiments made.

Among others, a new process is now in operation : that of salting the whole carcase entire, by injecting salt into the veins by the force of gravitation, or by force-pumps (Dr. Morgan's plan). It may seem presumptuous to criticise any new and unproved plan ; but I cannot see that this system can make any material difference in the issue. It is not the system or process that will primarily determine failure or success, but the medium and the condition of the meat.

I consider that the effect of the process of injection will be to impregnate completely the whole of the meat with salt-brine ; and that, consequently, no portion of the flesh will escape its full deliquescent action. Under these conditions it is natural to suppose that both the antiseptic and solvent effects will be in relation to the impregnation—*ergo*, that the meat will be very salt ; that a very large portion of the nutriment will be dissolved out or will dissolve out in the boiling, washing, &c., and that to produce a good article, it will be requisite—1st,

that the animal should be in a better condition; with firmer flesh, than is needed for other processes; \* and, 2nd, that there should be unusual facilities for the rapid drying of the meat. I may venture to express the opinion, all circumstances considered, that with equal condition of the lean of meat, that process of salting which admits of the most speedy drying, or which is worked the driest, *i.e.* with the driest and cleanest salt, and the most speedily dried, affording the smallest relative opportunity for the draining away of the juices, must be *per se* the best; that is, it will retain the most nutriment.

If the flesh, firm and packed with nutritive matter, of an animal killed when in a perfect state of rest and in a perfectly healthy condition, be salted in favourable drying weather, and speedily and thoroughly dried without getting any taint in any portion of it, as fair an article will probably be produced as is practicable by salting.

For salting and packing with pickle in barrels, a higher conditioned, well-fed meat is absolutely requisite. A certain maturity or age in the animal is another essential condition for successful curing. The habit of the cattle of the country is the reverse of early maturity, owing to the nature and precariousness of their food. As a rule, the meat of animals that have not passed the age of three or four years cannot be used advantageously for salting. Probably the most suitable age for the purpose will be found to be from four to six years; but this again

\* Dr. Morgan's process applied to *fat* sheep would probably produce much more satisfactory results than could be obtained by it on the ill-fed cattle of this country. After the first edition Dr. Morgan pointed out to me in a letter that in his process of infiltration there was some 'unexplained chemical action' which was favourable to the greater retention of nutrient matters. It would be interesting to determine the extent of any such action.

is influenced by the nature and supply of pasturage, water, &c.

The cattle destined for slaughter should feed *descansado*, and well, up to within twelve hours of the time of killing. During these twelve hours they should remain in perfect quietude, and at the expiration of that time slaughtered humanely and expeditiously. The bleeding should be complete, so that there shall remain only that which has been converted into the 'fibrine' of flesh.

It is with a view to this also that they should rest without food for the twelve hours before being slaughtered, allowing time for the complete assimilation of the food, *so that there may be as little matter in the body in a state of 'transition' as possible*, since that which is unformed and imperfectly organised, as well as that which is in a state of abnormal waste, is prone to decomposition, and will not take the salt, nor be preserved by it. The carcase should be cold, not only before it is salted, but also before it is cut up. There can be no doubt that it would be materially benefited by being 'hung' to bleed and cool before butchering.

The usual process here is to cut up or 'butcher' the animal as soon as it is killed and flayed. When the flesh is supposed to be cold, but before it really is so, it is cast into brine-tanks, and goes through two or three courses of washing and soaking in brine, being transferred from one brine-tank to another, and *pressed*, as it is stated, with the view of extracting or forcing out all the blood. It is, in fact, 'lixiviated' before being dried or packed, as the case may be. Under such a process it may be easily enough understood, from the explanation given in this paper of the effects of salt-brine and lixiviation, how little

nutritious matter remains in the meat when the process is completed.

Some of the older cattle fed on the 'strong' pastures which are found in districts in Buenos Ayres, in the Banda Oriental, in Santa Fé, &c. on the 'alfalfares' of San Luis, resist this process to a certain extent ; and if driving is avoided, and the animals are carefully killed, &c. a sound article can be obtained, containing always a certain amount, more or less, of nutriment. Two or three farmers are working on this principle near to the feeding-grounds of the cattle. They have produced an article certainly much superior to others ; and if they can so arrange as to diminish to the lowest point the waste from travelling and excitement, and be more particular in killing and butchering, they may still further improve the quality of their production.

It strikes me that in the absence of any thoroughly efficient method of preserving our beef in its solid form, so as to retain the greater part of its nutriment, we might advantageously look to those materials and appliances which are the direct causes of depriving the solid substance of its nutriment, to furnish us, in a concentrated form, with certain nutrient principles which they so readily dissolve out of the flesh.

I have spoken of the action of the acid of salt—muriatic acid—in extracting the food properties from the meat.

For many years, to my own knowledge (and I have suggested its use to many persons with much benefit), there has been what is called the 'cold soup of beef' used in hospitals in Europe, and by many eminent physicians, who have found it to be in the highest degree nutritious and unequalled in tonic or vivifying powers. This preparation is simply the *lean* of beef perfectly fresh (and the

sooner after killing the better), cut up into small pieces, and put, with rather more than twice its weight of cold water, into a vessel, a few drops of muriatic acid being added at the rate of eight drops to a pound of meat, and a little salt. In an hour's time the *whole* of the nutriment will be extracted from the flesh, and there only remains to strain it carefully, and the soup is ready for use. This soup is taken cold ; if heated, it forms a deposit, coagulum, and it would be less easy of digestion.

Again, I learned from the same authority—the eminent chemist before named—that by simply placing chopped *lean* of beef or mutton (all fat, gelatine, or tendons being carefully removed\*) in a vessel with a little cold water, and lixiviating, the whole strength of the meat is extracted. The result is ‘a brown thickish liquid, about the consistency of treacle—the pure extract of meat and the indigestible, innutritious fibre.’

If the liquid extract of meat is subjected to heat at a temperature of  $133^{\circ}$  Fahr. a partial coagulation of the albumen takes place, and at  $158^{\circ}$  the whole, including the colouring matter of the blood, is coagulated. Evaporated at a moderate temperature, the extract can be reduced to any required consistence (fat and coagulum being removed by skimming), and is soluble in hot water.

The extract retains not only all the extractive nutriment of the meat from which it is prepared, but also its flavour. The quantity of the nutritious extract is just the amount contained in the animal ; that quantity being dependent on its condition, size, and age. In an *old*

\* The theory of nutriment existing in gelatinous or tendonous substances is completely exploded in scientific and professional circles, and those which are in contact with them. Nevertheless, many still entertain such an idea whose opportunities have not been such as to lead to a better understanding.

animal there is very little nutriment—probably not more than 1 or 2 per cent. ; whereas in a young but mature one there may be from 12 to 14 per cent.

These preparations of the juices of meat are invaluable. Their portability is likewise a great advantage, as is also their ready conversion into the most strengthening soup.

For hospital purposes ; as part of the commissariat for an army ; for use in private families ; and, if they can be produced at a price that will admit of it, for a whole population, they will prove useful and beneficial in the highest degree.

The soup made from the juices of meat extracted by means of the muriatic acid, and used cold, is found to be the most easily digested food that can be given to patients in the lowest degree of debility. It requires little or no digestive action, and is in a state to be at once assimilated with the system ; but it is not in a portable form, and requires to be used fresh ; whereas the other preparation can be packed in the smallest possible compass, will keep for years, and a very small quantity mixed with hot water makes a highly nutritious and palatable soup, to which vegetables and farinaceous matters can be added.

I am informed that there is an establishment forming, or formed, in the Banda Oriental for the manufacture of extract of meat ; and I have no doubt that, if such is the case, the principle adopted in its preparation will be that propounded by Liebig,\* which has for many years been practised in Europe ; but as the meat is there dear, and the extract cannot be produced at a cost less than that of

\* Since writing this, I have learned that my supposition was correct ; that the party in charge of the establishment received his instructions concerning the process from Baron Liebig ; and that the extract bears his name, and is a decided success.

the meat itself, it is only manufactured for special purposes and limited consumption. If Buenos Ayres can supply this extract at a price within reach of the mass, it will prove very beneficial to the producers as well as to the consumers.

There is no secret in the principle,\* but there are doubtless many details with which anyone undertaking to prepare the extract should be thoroughly acquainted, and which the discoverer will have perfected.

A fair field, if not a most extensive one, is here open to capitalists. It is one method, at least, of utilising our beef to good, if not to the best possible, advantage, as *no particle of the extractive principles* (extractives of meat) contained in the flesh is lost ; whereas in all other known processes the loss is excessive, and is, moreover, greatly augmented by the necessary operations of washing, steeping, and cooking salted meats.†

It must be borne in mind, however, if we aim at the most 'advantageous utilisation of our beef,' and if we wish to acquire for this product the highest possible value, that the amount of nutriment contained in the carcase flesh represents its value, for whatsoever purpose or process it is destined ; and that by no process can we give it a value which it does not intrinsically possess. The process of forming the extract of meat will give us, in an available form, *all* the extractive principles and salts contained in the flesh of an animal, and *no more*. It will give us the crystallisable substances 'Kreatin,' 'Kreatinin,'

\* See Liebig's *Letter on Chemistry* (4th edition), Letter XXXII., and Appendix, p. 525.

† The best way of cooking such meats is to stew them with vegetables, rice, *farina*, &c. as in that way such nutriment as they contain is retained in the dish, which is made more palatable by the addition of raisins, olives, &c.

‘Sarcin,’ which are only to be found in meat, and in like manner the non-crystallisable organic principles and salts (phosphate and chloride of potassium), which are largely lost in other processes; but it will not give us ‘fibrine’ nor albumen, which remain in the residue, as stated by Baron Liebig, and the fat is utilised apart. This ‘extract’ is of great value, but it is nevertheless not a perfect food in itself, as wanting albumen, &c., which can however be supplied in other forms, as for instance ‘Caseine,’ whereas only meat will furnish the crystallisable substances mentioned.

The influence of excitement and travelling affects the quantity of extracts yielded, while, under other processes, it affects the nutritive value of the solid meat; and, *cæteris paribus*, the food consumed by the animal determines its relative value. We shall never get good value for our cattle until they are domesticated, and better kept and fed. This, like everything else, must have a beginning, and gradually extend itself. It is obviously the interest of all that this beginning should be made, and it behoves the wealthy and enterprising to lead the way. As regards the various processes, *that* is unquestionably the best which renders available the greatest value—that is, the greatest amount of nutritive matter from a given quantity of meat of equal condition, and which will enable it to be transported to distant parts in the condition of *sound, wholesome* food.

### III.

There are considerations connected with the condition of our cattle, the travelling and slaughter of the same, and the supply of meat in the markets, which stand

apart from the mere commercial question, and directly affect the population of our cities and the surrounding districts. These considerations are of a very serious and important character, bearing on no less a matter than the general health and mortality.

Year by year, the consequences of the condition of our meat supply are becoming more marked and more grave. The rapid increase of the city population, the larger supply of meat required, and (owing to the gradual driving back of the cattle establishments to a greater distance) the close feeding of the camps, and consequently the inferior condition of the animals, the exhausted state in which they reach the killing-grounds, the long period of hunger and thirst which they often experience on the way, in the pens (*corrales*) of the killing-grounds, and in the bare paddocks to which they are driven day after day, to return again and again to the *corrales* until sold to the butcher—all these circumstances contribute to affect our meat supply, to render it inferior, and, in the majority of cases, absolutely unwholesome.

I have shown, in the course of these papers, that the flesh of animals killed under such conditions is in a state of decomposition. The waste of substance and nutritious matter is far in excess of the reconstruction or organisation capable of being effected from the quantity of food taken by the animal. A given amount of food, in the requisite constituent properties, represents a corresponding amount of force; and so long as an equilibrium is maintained between the food taken and the effort made or force expended within the reasonable capacity of the animal, organisation is perfect, and a sort of *statu quo* is maintained in the state of the system. If a moderate excess of food is taken (over and above the force expended) and digested, the substance of the body

—perfectly organised substance—is augmented ; and in either case the meat is sound and wholesome ; but in the latter instance the nutritive matter in the flesh bears a higher relative proportion to the fibrous portion of the meat, and the quality of the meat, as food, is better.

In the case of an excess of effort or expenditure of power or force over the food taken, *existing*—previously effected—organism is destroyed ; that is, abnormal decomposition of organised matter takes place. It is notorious that from this cause the meat supplied to the markets grows bad, as a rule, in a few hours, and cannot be used on the second day. I have frequently known it unapproachable in eight or twelve hours, whereas I have killed my own meat, in good condition—*descansado*—in the country at Midsummer, and have eaten it on the *fifth* day perfectly good—better, indeed, than on the first day—with the thermometer in the *corridor* outside of the dining-room standing at 100° Fahr.

I have stated that meat in the state of decomposition is not fit to enter into the human organism. Meat, the organism of which is in part destroyed or decomposed, taken as food is prejudicial to health. Absorbed into the blood, it contaminates it, its oxidation becomes imperfect, and fevers and other disorders are the result. When poor and unwholesome diets are more or less general, low and putrescent fevers prevail, and epidemics are common ; and from food (vegetable or animal) that is imperfectly organised and wanting in the due proportion of constituents, parasitical diseases are generated. All diseases are traceable to functional derangement ; in fact, functional derangement constitutes disease, and all ‘function’ is dependent primarily on food and its assimilation.

It cannot have escaped the notice of even the least observant, that fevers, pestilential disorders, and epidemics

are becoming more and more common amongst us, and that the mortality from these causes is very great. There can be no question that the chief cause of this lies in the unwholesome meat supply, and is further increased by atmospheric impurities resulting from defective sanitary arrangements and accumulations of foul matters. Indeed, it is a rarity to find even a moderately good piece of beef on any table in the cities of the Rio de la Plata ; lean, wasted, tasteless stuff, only rendered passable in many instances by means of condiments, is the general character of the beef supplied to the cities.

It will not be uninteresting to take a glance at our culinary processes. It will be found that prevailing culinary practices have a direct reference to, and are an almost infallible index of, the qualities and properties of the meats cooked. The art of the cook is brought to bear on, and answer to, the palate of the consumer of the food, and this palate, taste, or craving is the expression of the demand of nature for certain aliments or constituents of food. The beef in these countries is almost universally, if roasted (baked) in the oven or fried, cooked with a large quantity of grease. The lean quality of the beef, with the absence of layering or veining of fat in the flesh, renders this necessary, to supply the needful proportions of heat-giving substance or carbon on the one hand, and on the other to check the draining away of the albuminous matters from the substance of the beef in the cooking process. When meat is boiled, 'puchero' is the dish usually made from it ; that is, meat boiled with vegetables of various kinds, the rice and vegetables, &c. supplying the deficient starchy or carbonaceous matters, and taking up the albuminous juices so readily parted with by ill-fed beef. In all stews and 'made dishes' the beef is found to be hard, almost horny, and

perfectly tasteless. It is the mere fibre of flesh; such nutritious matter as it contained, as in the case of salting, has drained away from it. To compensate for the deficiencies of nutritious and carbonaceous matters, and to absorb the juices that drain from the flesh, a variety of fruits and vegetables are cooked with it. Pumpkins, maize, raisins, olives, apples, pears, peaches, &c. &c. supplying saccharine matters—alkalies, vegetable acids, &c.—compensate to a certain extent for deficiencies in nutrient matters, or adjust the proportions of the food elements. These things are not only desired by the palate, but are absolutely requisite to constitute food, and as correctives; much in the same way as raisins, limes, &c. are necessary with a salt meat diet.

The country cookery—that of the pastoral farms or estancias—rude and simple as it is, is equally an index of the state of the meat. As the cattle are killed on the farm where they feed, there is no exhaustion or fatigue from travelling, and no decomposition or waste of the meat juices or fatty matter. The meat is pierced by an iron spit or ‘asador,’ which is stuck in the ground in close proximity and leaning towards a fire made of thistle-stalks, bones, or wood, in the open air or in the centre of a hut, which serves as kitchen. The heat of the fire speedily roasts or coagulates the albuminous matter on the surface of the meat, where it forms a coating, preventing any escape or draining away of the albuminous juices within the meat; it is consequently full of gravy or juice, and of good flavour, and constitutes a ‘dish’ which can be eaten daily from year’s end to year’s end without exciting any repugnance, a quality indicative of its wholesomeness and fitness to meet the requirements of the human organism.

If the animals killed are in good condition, all the

constituents—albuminous and fatty—are in such proportions as suffice for all the requirements of the system, and no other food matters are necessary. Hence the country people live almost entirely on beef so cooked, using only a little salt, and occasionally a biscuit. ‘Maté’ (‘yerba’ infused in a small gourd, or ‘maté,’ with boiling water, and imbibed through a tube) is taken in the morning and during the day. This is the tea of the country, and is very sustaining, containing a principle allied to theine, caffeine, and the principles of cocoa, the karab nut, &c.

The festal dish of the camps is ‘carne con cuero,’ or meat roasted in the hide. The animal is cut up with the hide on (on some great occasions when there are many to feed on it, the animal is roasted whole with the hide), a large piece is put on the spit and the inner side presented to the fire, as in the case of the usual ‘asado’ or roast; the red embers are then spread and the meat laid on them, the side with the hide on resting upon them. In this way the whole of the juices are retained in the meat, and it is particularly rich and satisfying.

The contrast in flavour, appearance, and nutritious properties which the meats of the country present to the meat procurable in the cities is very marked, and clearly shows a cause and effect in the long travelling and sufferings of the animals driven to slaughter for city consumption. The necessity for the feeding of cattle near the towns for town consumption is unquestionable; and in the face of the serious consequences to the public health arising from the consumption of ill-conditioned and more or less ‘tired’ meat, it is high time for some popular or authoritative movement to secure a supply of good-conditioned wholesome beef.

## NOTE.

*The Utilisation of the Beef of the River Plate.*

There has reached me from England the announcement of a new, or a modification of a known, process of preserving raw meat, in a perfectly fresh state, in tins, from which the air has been exhausted and 'nitrogen' substituted. Two gentlemen, Messrs. Sloper and Paris, have also arrived in Buenos Ayres to experiment on a process of the former, which has likewise the object of preserving the meat in a perfectly fresh and raw state.

These gentlemen have brought out samples of English-fed beef preserved on the plan of Mr. Sloper, which manifests a perfect preservation, being in appearance, odour, and flavour identical with fresh-killed meat.

I conceive that the results of the working of their processes, or of any others that may be invented, must be subject to the general law, and dependent relatively on the condition of the animals slaughtered; hence the question evolves, Can the flesh of the grass-fed animals of South America be preserved by any process so as to reach Europe as sound, palatable, and nutritious food?

There can, I think, be little doubt that it can be so preserved, *provided* always that the conditions which I have set forth in the course of this work are observed, and the grasses which are to constitute the food of the animals allowed to attain a certain *completeness of organism*, a certain maturity, before they are fed down in the ordinary course. This could only be looked for in certain seasons of the year, when the natural grasses are nearly all annuals; but these indigenous grasses can be supplemented with artificial grasses, aided by a system of paddock-feeding, as indicated in the treatise on Agriculture, and it is probable that only in such way could complete success be attained and an uniform quality of meat supplied. The business is one highly desirable for a large company.

All the processes of preserving meat fresh involve considerable

cost in packing, and meat that was not of concentrated nutrient value, *i.e.* well-fed and solidly packed with nutritive matter, would not be worth the expense. A pound of well-fed meat contains two, three, five, or even ten times the nutritious matter which ill-fed and driven meat contains; hence it is out of the question to go to the expense of packing what has not good value in itself.

Beef that has four, five, or *seven pence worth* of nutrient matter—alcaloid, mineral, albuminous, and fatty—would admit of the expenditure of *2d.* or *3d.* per lb. packing expenses, &c.; but such expenditure cannot be made on beef which does not contain its two or three pence worth of nutriment. Every class of food (of course excepting delicacies) has a relative value according to the quantity and condition of its flesh and fat-forming qualities, and when packing and transport are items of importance, it is most essential that the nutriment should be ‘well in.’

## PART VI.

## AGRICULTURE.

## I.

SHEEP-FARMING, sheep-breeding, cattle-breeding, and feeding (and the consequent utilisation of our beef) in progressive stages, must necessarily be dependent on agriculture. There is a mutual dependence, and there must be a mutual aid, or neither probably will or can be brought to any degree of perfection, and certainly not to a lasting one.

This is so important a truth, that thinking men of these countries should give it their earnest attention; indeed the conviction of this truth should dwell on the minds of the enlightened, and no opportunity should be lost for propagating it, and educating the minds of the masses to a right understanding of it.

Agriculture ever goes hand in hand with civilisation; and the most civilised nations are those with whom the science of agriculture is placed on the highest pedestal.

The decline and fall of more than one great nation has its connecting link with the absence of agricultural knowledge and agricultural practice; and the comparatively sterile lands, which exist in several countries as a consequence of an 'exhausting' system of farming, stand as impediments to their regeneration as nations. Able

historians and philosophers have pointed this out as a warning to present and future generations.

Pastoral pursuits are those of nomadic tribes and, when unconnected with agriculture, of nations in their infancy, when population is scanty, and wants are easily supplied ; but for a populous or moderately populated country to exist and advance without agriculture is a physical impossibility.

There is a prevalent opinion that these countries of the Rio de la Plata are unsuited for agricultural pursuits by reason of their climate, &c. This popular error cannot be too soon discarded ; indeed, to hold such an opinion is to assume that these countries cannot produce great and prosperous nations.

The prevalence of this opinion arose from the monopoly of pastoral pursuits under circumstances particularly favourable to them on a *primitive* system, from the small necessity for the practice of husbandry, and the very limited consumption of agricultural products but a few years ago (the bulk of the population living almost exclusively on flesh meat, like the wild huntsmen of forest and plain) ; from the almost total ignorance on the part of the native population of the elementary principles or practice of husbandry ; from the almost equal lack of acquaintance with these subjects on the part of the foreign settlers and commercial men of those days ; and lastly from the rude attempts made with rude implements, and the consequent precariousness and comparatively small yield of crops. Men who know not, and do not profess to know, how or why a plant grows, or under what influences different plants thrive, cannot possibly form a judgment of the capabilities of a country for agriculture. Furthermore, the man who has sown oats in England, Ireland, or Scotland, where the mean temperature is

many degrees lower than here, and where the rainfall is altogether different in quantity and distribution—and who has reaped abundantly under the combination of circumstances presented to him in those countries, certainly can have no just ground for assuming that these countries are unsuited for agriculture because the like cannot be done here. On equal grounds, the farmer who sows and reaps maize here, might assume that Scotland was unfit for husbandry because maize will not ripen there! Yet from such data as this have conclusions been drawn.

Every few degrees of latitude, every few hundred feet of elevation, mark a difference of agricultural products, and determine the more or less favourable conditions of their culture.

There are certain laws which govern these things. These laws are universal, but their application (as demonstrated by those same laws) is various—infinitely various. The science of Agriculture is the embodiment of these laws, and their just application.

The possession of a rich soil by any country marks it infallibly as suitable for agriculture; as the very existence of a rich loamy soil presupposes, and is the result of, a prior rich vegetation. The science of Agriculture teaches how this can be made available for reproduction in higher classes. The laws of tillage and its effects are everywhere the same; each plant, however, requires special conditions for its full development, and the business of the agriculturist is to select the plants for cultivation suitable to the conditions at his command; or by his art to provide artificial conditions, or modify existing ones. When moisture is deficient, irrigate; when in excess, drain; when the food elements of plants are wanting, supply them to the soil; if land is cold, raise its temperature by breaking it up to a considerable depth,

and thereby elevate the surface, subdividing its substance by diligent tillage, and by applications, generating heat such as quicklime, or decomposing vegetable matter, as manure, &c. &c.

There are conditions, however, which cannot be provided or supplemented ; for instance, plants which can only be grown at a very low temperature cannot well be produced in a warm climate. As vegetation will not grow without sunlight, from which heat is inseparable, therefore in the warm or hot climates of the tropics both agriculturist and horticulturist must fail in the attempt to raise the plants of the frozen zone or cold latitudes ; whereas the vegetation of warm climates can be grown in cold ones by means of artificial heat.

Agriculture comprises the cultivation of the mandioca, tobacco, sugar, rice, &c. &c., as well as oats, wheat, maize, turnips, &c. &c. On this broad basis it must be understood, and a selection of plants must be made best suited to the climate, the requirements of the country, and other conditions.

The various climates of the Platine States, however, more particularly those of the southern provinces, do not present any great disparity of features with those of the continent of Europe, its more northern parts excepted ; and even for the main products of the British Isles there are eminently congenial conditions,\* while some that may be wanting, or are precarious, can and will, in many dis-

\* From Cordova to Patagonia, from the Cordilleras to Buenos Ayres and the Banda Oriental, there is a range of climates which will nearly correspond in mean temperatures with those of the different portions of Europe and of England, southward of latitude 54. The provinces north of Cordova produce a subtropical vegetation as well as that of the more temperate zones, the different elevations of the lands and valleys in the range of the Cordilleras and spurs giving rise to great variety of products and great scope for agriculture and stock-rearing.

tricts, be provided by art, as necessities become greater and knowledge of the science more general. Meanwhile, we have ample compensation in those plants which find more favourable conditions here than there, and these *primarily* claim attention.

Again, certain conditions which may be supposed generally wanting, probably from the circumstance of their not having been found in one or other locality or tract of land, will undoubtedly be found in other situations or other varieties of *soil*, of which many varieties exist in every square league of land. These conditions the *agriculturist* (it must be understood that there is a marked difference between the 'agriculturist' and the mere 'tiller of the soil') can readily detect and appreciate. Other conditions which are not at present as favourable as we might wish will be modified by the extension of tillage and planting; the rainfall, for instance, will be more to be depended upon, and the absorption of moisture into the soil greater, both from rain and dew, so that the recurrence of drought (*seca*) may be less frequent or less felt.

## II.

I have stated that pastoral pursuits, dissociated from agriculture, are incompatible with material progression, when certain limits have been reached.

I believe that these limits have been attained within a certain radius of Buenos Ayres and other cities; and that the pastoral interest must inevitably decline in point of standing, if, from this time forward, the two are not to a certain extent united.

I have shown in previous papers that marked augmentation of the value of stock cannot be expected without

feeding both sheep and cattle ; that the lands, as they are in many districts, are incapable of supporting the stock now on them, and hence heavy losses and degeneration must be expected. Allied with tillage as an auxiliary, if only to an extent to meet pressing necessities, the pastoral interest is capable of very considerable development and increase of value. Incalculable national and individual wealth must be the result of the combination. There is no surer way, indeed there is no other way, to national greatness ; and it is especially the 'porvenir' of these countries, and in none to a greater degree than Buenos Ayres, Santa Fé, Entre Ríos, and the Banda Oriental. On the alluvial plains of some of these there is certainly no other source of wealth ; they are, as it were, designed by the Almighty for agricultural and pastoral pursuits.

Men on all sides are asking, What is to be done ? How are we to give increased value to, or utilise to greater advantage, this or that stock ? The answer lies undoubtedly in what I have said. Ponder and speculate as we may, there is no other answer, and I assert this truth emphatically. The wisest heads need not be ashamed to make a permanent guest of this 'little truth,' and bend their best intellects to the solution of the problem to which it gives rise. Our live stock is the sole source of wealth in the country. We must increase its value by feeding, care, and improved breeding, or all 'property' in the country will stand at a low level—a level commensurate with the value of stock.

### III.

To practise to a maximum advantage any of the arts which have their roots in physical science, it is necessary to have a knowledge of the theory of the science with

which such arts are connected ; and I purpose explaining briefly the fundamental principles of the same, which, as I have just stated, I believe to be the essential element in the development of the resources of this country.

The object of tillage is to destroy an existing vegetation so as to supply its place with a better one—*i. e.* with higher class varieties—and to produce more largely from an equal space, to multiply the surface of the soil, as it were, so as to maintain on it ‘ millions ’ where otherwise ‘ thousands ’ could not exist.

The science of Agriculture teaches us how best to till, sow, and multiply products ; and the sciences of Chemistry, Physiology, and others in relation with Agriculture, demonstrate the physical connection of all matter, the identity of matter in all composite things living or growing, and also its indestructibility.

We learn, by means of these, that from the soil and the atmosphere all things that grow and live have a common origin, what is their composition, and the course of construction or organisation.

We learn, from these, the composition of plants and of all living things or beings, and the conditions under which they live and thrive ; the composition of soil, the properties which it possesses in relation to vegetation, and consequently what increases or diminishes its productivity ; and lastly the atmospheric and cosmic influences which are agents in formation, life, growth, and the mode of their operation.

Let us trace, as briefly as possible, the connections of some of these things, and the origin of others.

The action of the ‘ waters of the earth ’ is that of a constant disintegration, and the atmosphere, the winds, rains, fire, and frost labour to the same end.\* Rocks of

\* The detailed processes of ocean deposits, volcanic action, the avalanche,

every variety are formed from substances that have had a prior existence ; and the particles of these, disintegrated by the washing of waters and the action of the atmosphere, form fresh deposits in the seas, the ocean, and on the low lands of the earth. Waters recede, or the land is raised, and the conglomeration of the various atoms in these deposits constitute soil. Soil is various in its class, according to the nature of the rocks from which it has been disintegrated.

All soil, however, contains certain elements, although in different proportions. These elements are identical with those existing in and forming everything that grows or lives ; and thus the proportion of those elements which are essential for the growth of vegetation, contained in a soil, constitutes a soil fertile or sterile. Some of these elements are only found in small proportions, even in the most fertile soils, and, among those of the smallest proportions, we shall find some which, in an agricultural sense, are the most important.

#### IV.

The action of the component parts of all soils, in relation to the growth of plants, may be classified in two main divisions; one mainly mechanical, the other chemical. To the former division by far the larger mass of matter constituting soil belongs, leaving, indeed, but a comparatively small percentage for the latter.

the iceberg, the formation of different strata of rock, the accumulations of Mollusca, &c. &c.; vegetable, animal, and mineral deposits and formations—lime, coal, salt, and metals—belong to other branches of science, and, although interesting to the agriculturist, are only in ultimate connection with his science. The attempt to explain these would be to go beyond the sphere of this paper, and would render it unnecessarily complex.

The mechanical action or condition with which the mass is invested consists in holding, distributed through its substance, the mineral elements which constitute the food of plants; with the power of absorbing, in greater or less degree, the gaseous elements needful for their growth; of absorbing and retaining moisture; of absorbing and radiating heat; in their capacity of subdivision and cohesion; and in their furnishing the wherewithal for the rooting of plants.

The chief substances which, as a rule, comprise what may be called the mechanically acting portion of the soil, are clay (insoluble silica), sand, and chalk, or lime. Soils are classified according to the relative proportions of these substances, which they contain, with other subdivisions determined by the proportion of organic matters (vegetable substances) which are mixed through them, and are denominated respectively clayey, sandy, calcareous, medium; also clayey loam, sandy or calcareous loam, &c. &c. The physical or mechanical conditions of these different soils can be and are modified to an almost unlimited extent by *tillage*, by which the most compact and impervious of soils can be rendered friable.

The process of disintegration, under the action of the atmosphere, the winds, the waters, and the light and heat of the sun, by which soils were formed, is repeated on the soil, and prepares its elements for the use of plants; chemical changes are effected, new and soluble combinations are formed, and the minerals, alkalies, and earths yield to this action their substance, which assumes forms available for the use of plants; these become diffused through the mass of the soil, and are retained in it by its inherent power of attraction.

Plants are composed of two principal parts—the underground, or roots, and the overground, or leaves and stems.

The organic construction of these two parts fits them for the different offices which they have to perform. The roots alone possess the power of taking up the minerals, alkalies, and earths—the inorganic elements which enter into the organism of the plant—and they do this by contact with the soil through which these elements have been distributed in an available form ; being endowed with a power of attraction and abstraction superior to that of the soil, which yields up to them the matters or food required for the formation of the stems and leaves, and the extension of the roots.

The food absorbed by an individual plant is in proportion to the root surface in contact with the soil containing that food, and the development of plants is in proportion to the quantity of these food matters existing in an available form, *i.e.* to a due supply of moisture, heat, and sunlight, and the extent of feeding-ground provided for them by means of the subdivision of the soil, so as to allow the roots to spread freely.

The soil, and the roots of plants in it, require the permeation of the atmosphere to prepare the mineral food, and facilitate its assimilation with the plant. This circulation, or permeation of the plant, is in greater or less degree, as there is more or less cohesion in the soil.

Moisture is absolutely requisite for the growth of plants ; it is an essential agent in the preparation of this food in the soil, and it enters into the plant, is a material agent in its organisation, and a large constituent of it. An *excess* of moisture, however, is detrimental ; wet stagnating in the soil obstructs the air channels, and, so to speak, suspends the respiration. A continuous process of respiration, or circulation of the atmosphere through the soil, and of absorption of moisture and its evaporation in

unison, is as essential in the soil as in plants and living beings.

As a consequence of efficient tillage, the cohesion of the soil is broken, its atoms are separated and an infinity of surfaces is presented, on which the atmosphere, the rains, and the dews percolating and permeating freely through it, act chemically, rendering soluble, and diffusing through it these mineral food constituents.

The change of position in the mass of the soil and its individual atoms, effected by repeated tillage operations, throws out fresh surfaces to the action of the atmosphere and the sunlight, thereby rendering available a larger quantity and a larger surface of soil saturated with available food.

From contact with the atmosphere, in circulation through its substance, the soil derives ammonia, carbonic acid, and oxygen—the solvents of mineral and the decomposers of organic substances. From rain and dew it derives also ammonia and nitric acid; and the evaporation of moisture (water) from any substance, generates ammonia from the nitrogen of the atmosphere; and in the case of this evaporation from the soil, the latter has the property of fixing or appropriating the ammonia thus generated. Ammonia and carbonic acid are essential to the formation, life, and growth of vegetation.

The absorption of heat by the soil during the day is counterbalanced by its radiation, or cooling at night, and this 'respiration of caloric' is essential. In hard compact soil the radiation is very slow; in subdivided or tilled soil, it is much more rapid, and dew, the result of radiation, is deposited on the soil and the vegetation, and is absorbed by them.

When land is deeply tilled, all these influences are extended in proportion to the depth tilled; the rainfall

penetrates, and forms a store of moisture in the substrata, rising by capillary attraction to supply the wants of surface vegetation, without stagnating in the soil or obstructing its air passages.

The mode and detail of tillage varies, however, with the class of soil and the nature of the subsoil. There are, as I have already stated, clayey soils—stiff clay, silicious clay, clay loams, sandy loams, vegetable loams, peaty soil, sandy soil, &c. All these varieties of soils, differing in physical conditions, have different powers of absorbing moisture, heat, and food elements, and their cohesive powers and tendencies are different. While the working of clayey soils involves the most laborious tillage and the most thorough disintegration and subdivision of atoms, that of sandy soils embraces the compression of its particles, so as to increase its power of retaining the moisture and food elements which it absorbs ; and it is frequently found requisite, when the subsoil is of a more compact nature, to bring up a portion of it to incorporate with the lighter surface soil, be it sandy or peaty. Sandy soils absorb heat rapidly, and part with it readily. Clay soils absorb heat slowly, and retain it with tenacity ; hence on these soils vegetation is parched or chilled, dwarfed or luxuriant respectively, under different weather conditions.

Extremes in soils are the most difficult to treat, medium soils, loams of fair consistence, the easiest ; the presence of organic matter effecting changes in the soil mechanically and chemically in the same direction with the changes brought about by tillage.

On the higher and sloping lands whence the rainfall rapidly drains off, a deep tillage is essential, as thereby the rainfall penetrates more readily and in greater quantity, forming a deposit or reserve of moisture which, as the surface dries, rises by capillary attraction.

On low lands a deep tillage is equally desirable, as the greater the mass of soil moved, the more the land is raised, the deeper and more readily the water penetrates, and the greater the extent of its diffusion. This class of land, therefore, thus tilled, is not so readily 'saturated'; the water does not stagnate on or so near the surface as to stop the circulation of the air and the diffusion of heat through the soil, which are so essential to the life and growth of plants.

On very low lands, in addition to deep tillage, it is requisite to facilitate the exit of the water by deep furrows, open drains, and ditches.

I do not enter on the very important and highly interesting subject of regular draining, as being from its costliness out of the reach of the infant husbandry of the country. I may, however, remark that it is nothing more than an advanced system of realising ends which I have just pointed out, viz. the leading down of the rainfall waters to a greater depth in the soil, and the carrying off any excess which would otherwise stagnate in it.

## V.

As the mechanical and physical action of soil is resident in and in relation to its general composite mass, so its chemical action has relation to certain elementary substances, or minerals, intermixed in its substance, each of which possesses certain affinities for others in greater or less degree, governed and determined by special physical conditions and influences. Under these influences there is a dissolution of certain chemical combinations and the formation of others. In the laboratory of the mass of the soil, all those changes, solutions, and combinations are

effected which dispose and prepare the inorganic or mineral elements forming part of its substance to enter on functions which form part of the cycle of organism or life. These elements constitute the mineral base of every thing that has life, development, and organism : from the humblest plant to the masterpiece of organism, man, there can be nothing without them. It is the combination of these organic mineral substances with gaseous elements which forms organic or living things ; and this combination is effected under a 'power' which is arbitrarily styled 'vital force,' or 'vital action,' and which comprehends every defined and undefined power from sunlight to electricity, culminating in the 'will' of the Creator.

These minerals are of two main divisions, or, more properly speaking, three—acid, alkali, and metallic—and consist of phosphoric acid, sulphuric acid, carbonic acid, potash, soda, lime, magnesia, silica, and iron. The presence in the soil of all these is absolutely requisite, otherwise vegetation could not exist on it. Vegetation is more or less luxuriant or scanty accordingly as there is less or more of these in the soil in an available form, and the character or class of natural herbage is determined by the relative proportions in which they exist. This is exemplified by the growth of rushes and sedgy herbage on low wet silicious clay, or clay lands in which there is always present a large quantity of free silicic acid, which (silica) enters so considerably into the composition of sedgy herbage ; it is also shown by the permanence of sainfoin, clovers, and the like, on soils containing much lime, this element being a large constituent of the many varieties of this class or order of plants.

## VI.

The growth of crops on, and their removal from, the land, the pasturing of sheep, cattle, &c. and their removal or slaughter, withdraw from the soil certain proportions of its fertilising or mineral matters; and each succeeding crop grown and removed diminishes the power of the soil for reproduction, in a definite proportion according to the crop. The same result follows from the continuous rearing and removal of animals, as they carry away with them, in their flesh, blood, wool, hair, and bones, mineral constituents derived from the herbage on which they feed, which in its turn derived them from the soil.

This is made perfectly manifest by a comparison of the analyses of soils, vegetation, and animal matters. A single series or table of these will suffice to make this clear.

	ANALYSIS OF MOULD.	
	FERTILE.	POOR, SANDY.
Organic matter and combined water .	12.502	16.70
Potash . . . . .	1.480	.06
Soda. . . . .	2.049	
Ammonia . . . . .	.078	
Lime . . . . .	5.046	.13
Magnesia . . . . .	.140	.03
Peroxide of iron . . . . .	10.305	
Protioxide do. . . . .	.563	.64
Do. of magnesia . . . . .	.354	
Alumina . . . . .	2.576	.78
Phosphoric acid . . . . .	.324	.11
Sulphuric do. . . . .	1.104	.02
Carbonic do. . . . .	6.940	
Chlorine . . . . .	1.362	.01
Soluble silica . . . . .	2.496	
Insoluble do. . . . .	51.706	81.50
Loss. . . . .	.935	.02
	100.000	100.00

	ANALYSIS OF	
	WHEAT	WHEAT STRAW
Potash . . . . .	29.97	12.14
Soda . . . . .	3.90	.64
Magnesia . . . . .	12.30	2.74
Lime . . . . .	3.40	6.23
Phosphoric acid . . . . .	46.00	5.43
Sulphuric do. . . . .	.33	3.88
Silica . . . . .	3.22	67.88
Peroxide of iron . . . . .	.79	.74
Chloride of soda . . . . .	.09	.22
	100.00	100.00

For analyses of grasses, clovers, flesh, blood, bones, &c.  
see 'Treatise on Sheep-breeding.'

The constant diminution in the produce of land continuously under crop is thus accounted for, where there is no sufficient restoration made in the form of manure, as is also the deterioration of pasture lands from which, especially under a system of excessive stocking, the more suitable and nutritious grasses gradually disappear. In pasture lands this, however, is not the only cause in operation to precipitate the result. On overstocked lands on which the best and most palatable grasses are closely eaten down, there is no sufficient opportunity for such better grasses to seed and reproduce themselves; so that ultimately the weeds and inferior grasses usurp possession. This is a process which is going on extensively on the sheep estancias of Buenos Ayres, and if it be not checked, very serious consequences will accrue to the land and stock-owners' interests.

The perpetual fertility of a soil is maintained by restoring to it, in sufficient degree, the minerals abstracted from it by the crops. This fertility or power of production can also be increased by mechanical operations (tillage) efficiently performed, and through the improvement of the

‘climate’ of the soil by drainage, &c. as explained in another part of this paper.

What we understand as ‘manures’ are matters which contain the elements that constitute the food of plants, which have served the purpose of one or more organisms, and, having undergone combustion or decay, are in a condition to yield up these elements for assimilation with other organisms, when, being restored to the soil, they meet with those conditions—mechanical, chemical, and cosmic—essential to the attainment of that end.

Along with efficient tillage, there is no law of the agricultural code more clearly defined, or more pointedly insisted on as of primary necessity, than that of the restoration to the soil of the matters abstracted from it by crops, &c. ; that is, of manuring the land where there is any sign of diminution of crops. The combination of the pastoral and agricultural is eminently favourable for the full compliance with this law.

For the complete understanding of this it is convenient to give analyses of manures. The most generally useful and efficient manure is that of the excrements of men and the inferior animals, which contain in their liquid and solid forms all the elements of the food on which they feed ; and it follows that the higher the feeding, the richer the manure.

As it is not my intention to overcharge this treatise with technical and scientific details, but simply to direct attention to fundamental principles and draw practical conclusions, I confine myself to quoting only such analyses as will suffice to *demonstrate* these principles and as in this paper and in that on ‘Sheep-breeding’ I have given the analyses of soils, fodder, grain, and flesh, it will not be necessary to do more than quote that of the ash of an average sample of farmyard manure.

ANALYSIS OF THE ASH OF FARMYARD MANURE.				
Potash . . . . .		3.22		
Soda . . . . .		2.73		
Lime . . . . .		.34		
Oxide of magnesia . . . . .		.26		
Sulphuric acid . . . . .		3.27		
Chlorine . . . . .		3.15		
Silicic acid . . . . .		27.15		
Phosphate of lime . . . . .		7.11		
Ditto magnesia . . . . .		2.26		
Ditto iron . . . . .		4.68		
Carbonate of lime . . . . .		9.34		
Ditto magnesia . . . . .		1.63		
Sand . . . . .		30.99		
Charcoal . . . . .		.83		
Alkalies and loss . . . . .		3.04		
		100.00		

(The large proportion of silicic acid results from the straw which, as bedding and as food, mixes largely with the excrements.

It is evident from this that, by applying to the land from which the food of the animals has been reaped the excrements of the animals, such land is restored to more or less the same state of productiveness as before the crops were grown ; and if to this be added a little bone manure —crushed bones or bone ash—on old pasture lands, paddocks, or ‘potreros,’ on which numbers of animals have grown and lived, and generation after generation sold off, the productiveness of these fields will be restored, as that which was removed in the bones will be thus returned to the soil, and the result will be that, if not overstocked, these lands will again produce the good nutritious grasses which had in part or wholly disappeared from them.

Comparatively sterile soils can be made highly productive by efficient tillage and liberal manuring, as thereby their physical as well as chemical conditions will be materially modified or wholly changed.

The assertion made at the commencement of this treatise, of the necessity of combining the pastoral and

agricultural which is comprehended in the term 'farming,' will derive point from the view presented by the foregoing facts. The feeding of animals on a 'farm' furnishes to the farmer on the spot, in the excrements, the means of maintaining the fertility or productiveness of his land ; and the result of efficient tillage and manuring is to augment many fold the yield of the land, thus enabling the farmer to maintain a much greater number of animals on a given space, and to maintain them better, rear them of a better class, and render their products of greater value.

The tillage destroys an inferior vegetation, and leads to the production of a better, more abundant, and richer one ; and better food produces greater development, better flesh, better wool, and more of them.

## VII.

The agriculture of Buenos Ayres and the sister states is, as a rule, rude and undeveloped, and, with very few exceptions, improvident. The crops comprise a few cereals, two of which alone are grown to any extent, and these year after year on the same land. Maize and wheat are the chief grain crops ; barley is also grown, but to a less extent.

In the immediate vicinity of the cities, the usual course on the farms (chacras) is to take consecutive crops of these cereals until the soil, to the depth to which their roots penetrate, having yielded up to them such a proportion of its available mineral food, ceases to produce sufficiently abundant crops to render their cultivation profitable. Potatoes, pumpkins, and the like, occupy but a very small extent of land. Recourse is then had to a

deeper-rooted plant, and the land is laid down with lucerne (alfalfa), which is mown for 'soiling' or hay year after year until it is worn out. During all this time the fertilising matter abstracted from it in the crops is but rarely restored to the soil. The extent to which the land is impoverished by this course in a few years, say the duration of the alfalfa, is very great, the alfalfa being a plant which exhausts the soil to a degree unequalled probably by any other. Alfalfa hay takes more or less 12 per cent. of its weight of the mineral food of plants from the soil, and the result is, that on most lands on which this plant has been grown it will not again thrive, and there is no other crop grown here that will as profitably replace it. These lands are, therefore, thrown out of cultivation, and recourse must be had to fresh land, or the farmer has to content himself with less remunerative crops.

When cereals alone have been grown, the usual tillage for which is shallow, a new surface can be provided by a deeper tillage, and a renewal of fertility is brought about for a time. On the other hand, alfalfa is an exceedingly deep-rooting plant, and impoverishes the soil to a corresponding depth. To maintain the fertility of a soil, we must, as I have shown, restore to it the matters abstracted from it in the crops, *in the form of manure*. Now this is next to an impossibility on the majority of farms (chacras) as at present managed.

On very few chacras are there any more animals kept than suffice to do the work of tillage, so that almost the whole of the crops are removed from the land, and the elements of reproduction with them; and there is no means of obtaining manure except at a cost in labour and carriage out of all proportion to the value of the crops themselves.

Changes of system and practice are always of slow growth in a country where the tillage and the pastoral establishments have ever been and are distinct, rude, and also disproportioned to each other in extent; and when the value of animals—horned cattle and sheep—is so small individually, the change of the agricultural system and its amalgamation with the pastoral must be especially difficult to introduce.

It is not, however, less the duty of a writer on these subjects to point to the only course which can ultimately raise the agriculture of the nation to anything like a rational and permanent system. This course is unquestionably the rearing and feeding of stock on farms for the city markets. The excrements of these animals, used as manure, will suffice to keep the land in 'heart,' that is, maintain its fertility: and, on the other hand, the rearing and feeding of improved breeds of stock constitutes the opening of a new outlet for agricultural products and a consequent extension of agriculture.

The rearing and feeding of stock is desirable on other grounds than that of restoration. The continuous growth of the same crops on the same land has a highly prejudicial effect on its productiveness, and also superinduces in the crops diseased conditions of a parasitical kind causing blight and partial or total failure. Variety and a certain rotation or change of cropping, added to efficient tillage and sufficient manuring, is that which agricultural experience teaches to be the most profitable, as well as the most advantageous, course for the land. This variety is rendered practicable and necessary when stock is kept on the farms, as forage crops can, and of necessity must, alternate with cereals and pasture. The more suitable forage crops will be discovered in practice, and the seasons best suited for their sowing and rise, to

meet the exigencies or conditions of the climate, will become known. The bean, the vetch, the melilot, the turnip, beetroot, carrot and cabbage, the sargo, sugar-grass, and bromus, &c. &c. may all be found desirable.

On all farms, too, where animals are not kept, there must necessarily be much waste. Much that is grown may not be marketable, owing to injury from weather, and other causes and contingencies to which every farmer is subject, or which arise out of the nature of the crops themselves. All this can be utilised when there is stock, so that no part of the farmer's labour is lost to him.

These things, in fact, constitute the economics arising out of 'mutual aid' and 'mutual dependence,' which lead to, and determine, in their completeness, the maximum good in all rural concerns and all nature.

As we have to bring animals to the tillage farms in the *chacra radius*, to effect their rapid extension and increase and perpetuate their productiveness and value, so we must carry agriculture to our sheep-farms, and also to the cattle establishments, on which the owners rear high-caste cattle.

On the sheep-farms this is already a crying necessity everywhere, and probably we have in this the most urgent and important call for that union of the pastoral and agricultural which constitutes the life-blood of a nation's prosperity.

## VIII.

It has been demonstrated, and the fact is patent, that no material progression can be looked for, in either sheep or cattle-breeding, without the aid of more nourishing food, and a more constant supply of it than is provided

by nature under her varying influences, and the present general practice. It is absolutely necessary, therefore, to grow auxiliary food, and to dispose of and use the pasture lands under a system which will admit of their yielding more abundantly and more continuously, and also preserve upon them the better class of grasses. How to effect this is the problem which presents itself for solution to every landowner and stockowner who desires to keep pace with the times.

That man must be bold indeed who would presume to lay down a definite law for universal practice in the very dawn of a new phase in a great national industry; but we may yet seek to throw some light on a subject which is to work out the well-being and 'life' of the land we live in, and which is complicated by an infinite variety of individual circumstances, of conditions and situations of land, a considerable range of climate and climatic influences, and great differences of vegetation.

Let us take into consideration, in the first place, our natural pastures. We find them teeming with luxuriant vegetation and bare and arid by turns. We find alternate tracts of wet and cold, rich and dry lands. Each in its turn serves a purpose or entails a prejudice, supplies more or less food according to the season, and to the weather during the different seasons of the year, and produces different classes of herbage—poor and scant, strong and coarse, sedgy and of little nourishment, rich, succulent, and luxuriant, or fine, tender, and nutritious.

The higher, warmer, and richer lands yield, with an average fall of rain, abundance of palatable grasses and clover during the autumn, winter, and spring, but many of them are utterly devoid of green herbage during the heats of summer and early autumn, more especially in a season of less than the average rainfall. On the other hand, the

lower lands, thinner in vegetable mould, and more clayey, are under water after heavy rains, and wet and puddly after every medium rainfall. At such times the vegetation is by consequence deficient in alkalies and saccharine matter, poor in constituents of nutriment, and tending to scour; but when the rainfall is scant and insufficient for the higher grounds, more especially during early summer, these low lands are clothed with nutritious and palatable herbage and sweet grasses, in many instances intermingled with two or three varieties of the melilot.

The most remarkable peculiarity of the medium and higher lands is the full possession taken of immense tracts at certain seasons by the variegated thistle, which, overshadowing every other herbage, chokes it and causes almost every vestige of it to disappear. In other tracts the hard perennial thistle (wild artichoke) dominates. Intermingled with these plants, in the lower stages of their growth, are the very best of grasses, but in the months of its maximum growth this thistle covers the ground completely, bidding defiance to the entry of almost any animal into its prickly domain.

With few exceptions, the grasses, clovers, and various kinds of palatable herbage are annuals, and these constitute two distinct series, growing and seeding in different seasons of the year, and making no sign whatever at other periods.

One series of these grasses does not make its appearance until after the heats of the summer, when the first autumn showers cause them to spring into life. They develop, seed, die down, and disappear with the autumn, and are succeeded by the other series, comprising both grasses and clovers, which, springing in the early part of winter (or late in autumn), maintain a low state of development

during the winter, and spread out luxuriantly with the genial spring weather.

On the uplands and medium lands carrying considerable stock, the trefoil (medick clover) prevails in the spring season over the graminaceous grasses; its predominance is in proportion to the stock kept on the ground, more particularly in the case of sheep, whose close feeding allows little chance of the grasses seeding, and being annuals they necessarily die out of the land, whereas the trailing habit of the medick clover, with its abundant seed, produced on every shoot, however short it may be eaten, causes it to dominate. Succulent and nutritious as this trefoil is, its excessive predominance is a great evil, and is a sure sign of overstocking. It is an early plant, and seeds and dies down early in the summer; the stems and trailers being of a soft and succulent nature are extremely light and substanceless when dry, completely withering in the summer heats, and leaving the ground on which it has grown most luxuriantly, perfectly bare. On the other hand, the more solid stems of the true and graminaceous grasses, when they have a chance to grow (and the stronger and closer packing of the roots presents much greater resistance) fall over and protect the land from the action of the sun, checking the evaporation of moisture, and encouraging the germination of the fallen seed and the intermingling of a young and tender grass with the faded.

If every sheep-walk comprised the varieties of soil, elevation, and herbage which I have here described, it would be an easy matter to ensure a continuous and sufficient pasturage for flocks of sheep duly proportioned to the land; but since, as the rule, a flock of 2,000 sheep, or two or three such flocks, will probably have the 'run' of but one variety of land, high or low, as it may

be, it becomes a very nice matter to dispose the grazing and calculate the amount of stock that can, with safety and advantage, be put on a given tract of land.

This disposition of the pasturage, so as to give opportunity for the seeding of the good grasses, and the holding in reserve, for certain seasons, of a portion of the land well clothed with grasses that are less perishable than the trefolia, could be systematically managed, were it practicable for the landowner to 'fence.' Such an undertaking as general fencing and subdividing the sheep-walks or establishments, gigantic and costly as it would be, is in but rare instances practicable; first, by reason of the want of capital, secondly, from the insufficiency of labourers, and thirdly, from the small comparative value of the sheep. Doubtless this will ultimately be done, and the means will be made forthcoming as the improvement of the sheep increases the weight of their *fleece* and *carcase* and gives them individual value.

Supposing the land to be fenced, the sheep should be removed from one subdivision to another, according to the state of the herbage, to allow of the growth of the graminaceous grasses, when they would otherwise be deficient, while on land on which there is an excess of coarse herbage stock should be accumulated at a season when such herbage is still tender, so as to eat it down and '*fine it*.' These are matters of the highest importance, and require intelligent management. Failing the fencing, it is unquestionably to the interest of the landowner to arrange the grazing of the flocks on certain portions of his run at certain periods of the year, in as near an approximation as possible to the system which he would adopt supposing it to be fenced. If through injudicious management, by insufficient or excessive grazing of the land, the herbage is allowed to deteriorate, he, *de facto*,

loses a portion of his capital invested in the land, as that land not being able to carry its due proportion of stock is, by reason of such deteriorated herbage, of less positive or actual value.

A careful examination and study of the herbage of lands, and the period of its growth and ripening, is necessary if we would form a correct estimate of its capabilities for carrying stock ; and it is not too much to say that on this the greater or less profitableness of sheep-farming is dependent.

The stocking of land must necessarily be regulated with regard to season contingencies, as well as to the nature of the soil and its grasses. The openness of the country, without wood or hill, exposes it to a very unequal rainfall, and long and occasionally severe droughts occur. An effective and rational method to avoid the consequences of such recurring evils is that of always maintaining an extent of tillage land proportioned to the whole stock and its probable requirements in exceptional seasons, and as an auxiliary in others, on which to grow deep-rooting artificial grasses and other fodder plants, and to stock a portion of the same as a reserve. This, like the 'fencing,' can only be done when the 'stock' is of a value commensurate with the necessary labour and expense—*i. e.* when the stock is *worth taking care of*, or *can be made so*.

Probably the most effective step towards a complete system would be to lessen the extent of the establishments or estancias, when the capital is not in proportion to the extent. A man who has a dozen or half a dozen leagues of land (or even much less), with means disproportionate to it, must necessarily be overwhelmed by the magnitude of the work required to place the whole property and stock on a proper footing ; and such men must either reduce their stock and holdings, or devote a fractional

part of them to the initiation of an improvement which, in course of time, they may make general ; and there can be no question whatever that there must be tillage land on every well-regulated establishment, or material improvement cannot be hoped for.

## IX.

### THE 'THISTLE,' 'SEPO CABALLO,' 'ABROJO,' AND POISONOUS HERBS.

The former of these has its advocates, who believe it to be not only a proof of good 'campo,' but advantageous in itself. Sheep, cattle, and horses feed on it at certain stages of its growth, while its seeds furnish a certain quota of highly nutritious and oleaginous food ; and it is notorious that, at the season of the fall of the seed, all stock get into good condition. The thistle seed and the seed of the medick *clover* are eaten from off the ground on which probably not so much as a blade of grass is to be found ; but I do not hesitate to say that it is an unquestionable and an incalculable plague. The large spreading leaves and dense growth usurp the space which would be occupied by infinitely better fodder, and of a nutritious quality tenfold greater than that of the thistle. In its early stage, it is unquestionably a debilitating and unwholesome food, producing hove and scour—and at that period of the year all stock are lean and weak where the thistle prevails ; and there is little doubt that, even at the period of the seed fall, a very much greater number of animals could be maintained in equal condition on the ripe grasses which would occupy the land, were it not overshadowed by the thistle. Its direct extirpation, however, is an impossibility on estan-

cias, and all that can be done for some time to come will be to clear fractional tracts, by cutting it down with thistle-mowers, year by year, so as to admit of the growth of grasses and their seeding, and the consequent re-stocking of the land with them. To effect this, the cutting should be at two periods—early in the spring and at the time of flowering. If grasses are once permitted to reproduce themselves in parts, and the lands are not excessively depastured, they will gradually gain on the thistle, which, from the pressure of the grasses on their roots, will gradually diminish in luxuriance of growth and denseness, and be finally deprived of the conditions which favour its reproduction.

On the lower lands there is little or no thistle. It cannot exist on what are called the 'bañado,' or bathed lands; but certain plants of an extremely prejudicial character, bearing abundant seed-pods of oval form, densely covered with serrated prickles, are apt to infest them, and if not eradicated spread rapidly, rendering the camps comparatively useless, or worse than useless. Of these the abrojo, or large burr, and the sepo caballo are the worst. The seed-pods, fastened into the hair of the legs, manes, and tails of horses and cattle, are carried about by them, and, ultimately bursting, scatter the seeds, which vegetate in any soil or land, high or low, although flourishing with greater strength on the lower.

In the wool of sheep they are known as the worst of banes. The 'cutter' that has been lately invented for the thistle answers fairly for these plants; and so mischievous are they, that it is a public duty to eradicate them when practicable.

Lesser evils, but at the same time by no means small ones, are the biznaga and wild camomile, which spread

extensively on lands somewhat bare of good herbage. Poisonous tall-growing plants, such as the 'cituta,' hemlock, miomio or romerillo, and others, require to be carefully eradicated, as many animals are lost by feeding on them. All these, poisonous or otherwise, being either annuals or biennials—miomio and the cardoon, or wild artichoke, excepted—are to be got rid of by cutting at the time of flower; but in many districts the extent of land occupied by them is so great as to be beyond the ability of the estancieros to effect their eradication by direct means.

In a country where rural industry is in its infancy, farmers are disposed to avail themselves of large areas to rear or produce with the least possible expenditure and labour, extent being expected to compensate for all defects and deficiencies. Consequently, where persons dedicating themselves to these industries have little knowledge of the businesses, or the principles which should govern them, and where the soil is predisposed to throw up distinct classes of vegetation under different treatments, it is not surprising that unlooked-for consequences result from the courses adopted. Species die out under changed conditions, and varieties give place to other varieties of the same species. This is true in animal life; it is true in respect of the second proposition with the human species, and it is true in respect of both in the vegetable kingdom. There are races of men which inevitably pass away, or die out, in the presence of others of higher aptitudes, physical, mental, or moral. Animals, reptiles, insects, give place to distinct species introduced into the same sphere, and varieties of the same to others of different habits. Diversities of treatment and mechanical operations on the face of nature produce coincidentally changed conditions, and these changed condi-

tions are incompatible with the continued existence of those things or creatures which prevailed in the identical localities prior to their changed conditions.

In many cases it would appear that the mere presence of certain species or varieties is antagonistic *per se* or is incompatible with that of others. This results doubtless from actual, though unexplained, changes which they effect in conditions on which those others are dependent. This is exemplified in insect varieties; thus certain flies will disappear on the invasion of their territory or atmosphere by others of apparently weaker varieties. In these countries it is found that the large blood-sucking tabano fly, which abounds in the virgin prairies, disappears as the more domestic varieties follow the footsteps of man. In New Zealand a similar thing occurs with the extraordinary prolific blow-fly of that country on the diffusion of the common fly, but, as far as is generally known, the ultimate cause of this effect or consequence is not definitively explained.

Every modification of condition, whether from depasturing, burning, tillage, or other operation of moving the soil, changes the vegetation, and this over so large an extent, so completely, and so immediately in some cases, as to give the idea of spontaneous production. Restraining the growth of an existing and prevailing vegetation by any means, and varieties and species that were in abeyance, and others again which had no apparent existence nor germ, successfully contend with and drive out the prior and apparently stronger ones. Break up land, and it will be covered by numerous plants that had no recognisable prior existence nor germ. There is undoubtedly a rule or law which governs these things, and an exact or, failing this, an empirical knowledge of local effects in its operation would tend greatly to advance the

pastoral and agricultural practice, and prove a great economy in a country such as this.

Serious injury has been done to vast tracts of country from the non-perception of cause and effect—one or both—in these matters, and there is the further danger of extending the injury to new camps. On the other hand, the knowledge of the habit of plants or herbage would prove eminently serviceable in the task of recovering or restoring the campos when they have been overrun with, and rendered unserviceable by, a dense weed growth, which, from the very large extent over which it spreads, it is almost impracticable to destroy by any direct mechanical operation.

There are several ways in which vegetation is changed or modified.

The flooding of tracts of country along the course of streams will diffuse distinct vegetation by the floating off of seeds from one part and their deposit on others: this is an accidental cause and beyond control. Again, different degrees of depasturing, with different species of animals, will produce certain calculable modifications and changes of herbage on lands of given quality. The knowledge of these effects and of the economic value of pasture plants in their various stages of growth and organisation would prove a great power in the hands of the pastoral farmer. Successful rearing of stock and profitable utilisation of their products would be determined in a degree corresponding to this knowledge, empirical or scientific.

Tillage is another powerful agent, calculable and controllable. Tillage of fractions of land on the large estancias will become very general. In the exceedingly rich lands of some of the outside camps in the province of Buenos Ayres, from which railway transit is accessible, grain-growing will extend; but the tillage for this will, it

is to be feared, be of the most slovenly kind, as it has been on the somewhat nearer camps of the same districts. Plots of fifty to several hundred acres are ploughed up in different parts of an estancia as may suit the tillers who rent the land and the owners of the soil, the sowings, as a rule, being effected in the open. The seeds (wheat or maize) are put in, and numerous large weeds, abrojo, sepo caballo, bisnaga, wild mustard, miomio, &c. &c., come up with the crops on lands where before no such plants had apparently existed ; little or no attempt is made to clean the crops, which are gathered or cut from among the weeds, which, remaining to mature and shed their seeds, foul the land to an extraordinary degree. None dream of a fallow to clean this land ; the practice is to move on to other ground, as it is much easier to turn up new than to clean foul land. Sometimes, indeed, a second or a third crop is taken from the same ground, but, as the same slovenly practice of tillage and harvest is followed, the result is more weeds and less grain, and the land is irretrievably fouled, or only to be cleaned by an expenditure of labour twice or thrice what would be required to produce equal crops from newly broken up sward.

These fouled stubbles serve for depasturing cattle and horses for a time ; meanwhile the weeds multiply, as they are untouched by the animals, and seed while the grass herbage is fed down.

The weeds thence spread on to adjacent camps, the seeds being carried by various agencies. The prickly seed-pods of plants, such as the prolific abrojo or sepo caballo, attach themselves to manes, tails, and legs of horses, and to legs and tails of cattle, in masses, and drop out as they dry, or fall off with the hair and lie until conditions favourable to their germination arise—often for years. From these causes immense abrojales, beds of

sepo caballo, bisnaga, &c. have spread over leagues in the tillage districts, the two former rendering sheep-grazing utterly impossible and only admitting of cattle-grazing at certain seasons of the year, as when the abrojo plant, with its broad leaves, nearly attains its full growth, it shades all other vegetation, and at seed-time no animal can enter without being completely coated with the seed-pods. The sepo caballo plant is densely studded with thorns, and animals will not willingly go in among them until the plant is drying and the thorns are dropping off, and then the seed-pods attach themselves like those of the abrojo.

So completely are very large tracts of land in several districts occupied by these pernicious weeds, that the clearing them by direct means would be an immense labour, the cost of which would far exceed the present value of the lands; yet is it very important to get rid of them and check their spreading.

In the magnificent new camps which are now getting settled, and on which the pastoral industries will be combined, or go on side by side, with agriculture, the latter in relatively limited extent, the evil that has fallen on certain nearer districts can be avoided by a more careful tillage and cleaning of crops, and in the case of wheat or barley, by reaping with machine or scythe, instead of with the hook. Most of the worst weeds will have shot their flower-stems at the time of harvest, and being annuals, would be got rid of by the cutting; and it behoves all owners of lands to be particularly careful, and exact the proper tillage for cleaning and harvesting of the crops, otherwise they will in a few years find much of these lands rendered useless for stock, and especially for sheep. But what is to be done with the already infested camps, and how may we check the spread of the

evil? An answer is suggested by the natural antagonism of certain vegetable species

In over-depastured lands nearly all the true grasses have disappeared, or are kept in abeyance, and the annual broad-leaved variegated thistle, the medick clover (carilli, or small burr plant) prevail on the land, and these have risen, so to speak, spontaneously, from conditions favourable for their development; but, as the writer has proved in practice, these lands can be reconquered from their domination by modifying the treatment which gave rise to the conditions which superinduced it.

The seeds of the true grasses vegetate and tiller at a somewhat earlier period than the thistle—the cardo jasnal. Hence if these grasses (even if they be but sparsely scattered over the ground) have a chance of seeding, they will, in the course of a few years, so far reoccupy the ground as to compress the young thistle plant, reducing the vigour of its growth, and as their seeding becomes more liberal, they will so stock the land as to drive out their apparently stronger rival, or at least keep it so completely in check that its presence causes no appreciable injury to the pasture. The medick clover in like manner is restrained, and, in place of a hurtful predominance, is reduced to hold its proper place as a desirable component part of the herbage. It is quite as practicable to restore wasted pasture lands to a perfect state of mixed herbage of the richest and sweetest quality by the graduating and timing of their depasture, as it is to refine the virgin prairies and maintain them at any given point or condition within the range of the capacity of the soil for the production of pasture.

The 'abrojo' is an infinitely worse plague than the soft thistle (cardo jasnal). The thistle camps are still pasture lands for sheep and cattle; the plant itself is fodder, though

inferior ; the leaves, both green and dry, are eaten by all stock, and the seed is fattening, whereas the abrojo is not fodder, and it absolutely excludes woolled animals, and will hold its way among the best of grasses, as its germination and tillering are strong, and the form of the plant allows it to grow among grasses and to overshadow them. The young thistle, growing flat and plantain-like on the surface of the soil, is soft and compressible up to a certain period of its growth. Looking to the different habit of plants and the antagonism of certain species, we find that these two are opposed. The cardo jasnal germinates in the autumn, the abrojo in the spring ; the cardo attains a much larger growth, and it is a large plant before the abrojo germinates ; it will therefore smother the abrojo, which will rot under its shade. Hence, with a little mechanical aid, we may conquer the greater evil through the lesser, as this in its turn can be dominated by the true pasture plants. When the abrojo exists on land on which the thistle (cardo jasnal) will grow,\* the introduction of the cardo jasnal around and among the abrojo beds will restrict their spread, and finally extirpate the plant. This result has been brought about on many inside camps on which the spread of the thistle was the consequence of excessive stocking, and it can be effected in a direct manner by scattering a few bushels of thistle seed in the desired localities, without fear of the thistle spreading on to other camps so long as an excess of stock is not agglomerated on them. Like the refining of camps, or the restoration of camps with worn-out herbage, it is a work of time to free those which are infested.

The sepo caballo can be conquered in a similar manner.

\* There are some lands on which the cardo will not grow, by reason of its wet nature, and on these the abrojo finds its most congenial conditions.

This plant possesses valuable medicinal properties ; it is used in decoction with marked benefit in liver complaints. The bisnaga is also used for the same purpose, but this plant has no specially hurtful qualities, and it is to a certain extent a fodder.

Perhaps the worst of the poisonous species of weeds is the miomio, or romerillo, and considerable losses have from time to time been sustained by moving hungered stock and sheep from lands on which it does not exist on to those where it abounds. But even this may be avoided by 'smoking' the animals with its fumes. Thus, after collecting a quantity of the plant and making it dry enough to burn, the heaps are ignited to windward of a pen, in which, say, sheep are enclosed ; the fumes nauseate the sheep, which henceforth have a repugnance to the plant itself.

When accustomed to it, flocks and herds graze with safety on lands where it abounds, and when there is a sufficiency of pasture, even new comers, after having been subjected to the smoking, may be trusted to feed on such lands.

It would not be easy to over-estimate the actual profit that would accrue to sheep-farmers and other estancieros by a practical application of the foregoing suggestions for the judicious 'stocking' and systematic depasturing of estancia lands. Only a detailed study and observation will reveal the full importance of these matters. Their neglect is felt everywhere, but felt without tracing cause and effect as connected with it. Inevitable consequences, arising out of natural causes, are set down as 'epidemia.' The wilfully blind shrug their shoulders when they look upon dwarfed sheep or their carcasses strewing the camps, and still the rising consciousness of reproach for the greed for numbers, and for neglecting to make the necessary

outlay to attain better results, by raising the cry of 'Epidemia!' as though this was a something impalpable, borne on the breeze, and disseminating degeneracy and death ; whereas, in ninety-nine cases out of one hundred, *starvation* is the active cause of nearly all the evils that, from time to time, visit the improvident sheep-farmer.

## X.

In proceeding to treat of tillage or arable farming on estancias, I wish it clearly to be understood that I am not suggesting any vast or impracticable scheme for putting the whole country under tillage, or anything more than a very limited accessory to the great pastoro-agricultural economy, or management, of grass or grazing lands. Nevertheless it is an extremely important adjunct, and no estancia henceforth can be considered to rank in the file of progress without it.

The object is to supplement the indigenous herbage, and constitute a reserve to meet exceptional and unforeseen necessities, and to provide a superior class of food for that portion of the stock which is destined to raise the standard of the whole, and stamp on it its type.

On estancias the means of enriching the land under tillage, and producing from a small surface enormous proportionate produce, are unbounded. A deep and thorough tillage and ample manuring, as I have fully explained in this treatise, are the means. A superabundance of fertilising matter supplied by the corrals and rodeos is at the command of the estanciero, and a free use of it will result in a great economy of labour ; as through its instrumentality an amount of produce will

be obtained from a given surface equal to that which would otherwise be obtained from double that surface.

To exhibit my views in a clearer light, I will describe the working of an establishment such as will probably meet the requirements of most.

On an estancia of any given extent and number of improving stock—say, sheep—a central agricultural farm, of an extent corresponding to circumstances and the necessities of the system proposed to be carried out, should be formed on well-selected ground, both as regards its quality and convenient position in respect of the various ‘stations,’ or ‘puestos.’ From this farm all the important regulations must be directed, and on it must be kept the whole of the ‘sires’ which, through their superior vigour, class, and type, are looked to to stamp their characteristics on the general stock, and to engender uniformity. Such farm must necessarily be under the immediate direction of the owner of the establishment, or a thoroughly competent manager.

It has been laid down as an absolute rule, not only that the rams (if any material improvement is to be effected) be separated from the flocks, well kept, and ‘told off’ to the flocks at fixed periods and for a limited time, but that the borregas must be separated from the flocks before the rams are introduced, and that capones (wethers) and old ewes should likewise be parted out and formed into a flock or flocks apart, until opportunity offers for disposing of them, or they can be steamed down. There will therefore be required, on every estancia of any size, one or more ‘puestos’ for capones and old ewes, placed in paddocks (potreros) that will least incommode the ewe flocks. There must also be a puesto, with fenced or unfenced run for the borregas, which would have to be either redistributed to the flocks, after the rams are taken

out, or formed into permanent flocks, and supplied with rams when of proper age.

On the central farm a sufficient extent of land would have to be laid out, fenced, and subdivided into convenient paddocks, together with divisions for alfalfa, maize, and other artificial grasses, conveniently situated with respect to corrals, sheds, wells, drinking-troughs, and other conveniences, erected on it for the rams.

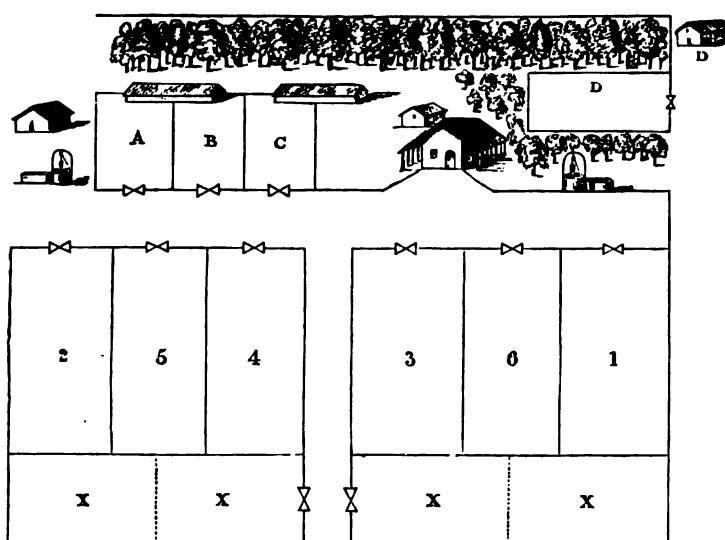
Assuming that the flocks of the estancia have attained to different degrees of improved quality, it might be convenient to keep the rams corresponding in quality to such flocks, in separate lots—two or three, as may be—each ‘lot’ having its own potreros, sheds, and corral. Probably the most convenient arrangement would be to have these potreros alternating with the ‘alfalfares,’ which, when not standing for mowing, and the ground being dry, would serve for occasional grazing, to relieve the grass potreros.

I may state, incidentally, that a complete system of management makes it necessary that the whole of the stock should be under the absolute control of the estanciero. Either all his shepherds would have to be on a fixed wage, or those who had the charge of the ewe flocks (composed wholly of ewes) might be on a capitation wage, receiving a sum of money for every lamb counted out of these flocks, by which means they would be interested in the preservation of the lambs, and would earn an extra wage by extra care.

The following is a plan for a central farm, which might in many cases prove a convenient arrangement, and at all events will make my meaning plain.

In this plan I place the rams, corrals, and sheds in a position sheltered from the south and west by the house and montes; in front of these, with a wide, well-levelled,

and cleared road intervening, I indicate a convenient arrangement of potreros, alfalfares, and tillage lands under fence. Nos. 5, 3, and 1 represent grass paddocks of dimensions proportioned to the number of rams proposed to be kept in them. To render these productive of rich nutritious grasses, a good top dressing of corral manure should be given, thistles and other weeds being



cut down or 'spuddled' out. The 'soft' thistle, should be cut early, and the cutting repeated so as to facilitate the growth of grasses, the room of which they occupy. The 'hard' thistle must be 'spuddled' out, and so with other weeds, as they are of annual or of perennial growth. This treatment (manuring and cleaning) will abundantly repay the outlay. Nos. 2, 4, and 6 represent alfalfares. One of these, or a portion of one, should be used for the supply of green alfalfa, to be given to the rams in the evening, in the sheds or corrals (in racks),

during the spring, summer, and autumn; the others could be cut for hay for morning and evening feed of the rams, and as a reserve in any case of need for the flocks, and to supply the ewes with a little dry nibbling for a week or two before lambing.

These alfalfares would be made *enormously* productive if a heavy manuring were given to the land before ploughing for sowing. In addition to this manuring, the deeper the tillage the better, as the result of deep tillage will be the infinitely more rapid and luxuriant growth of the plant; and, moreover, it will be much less influenced and prejudiced by drought. Under such a preparation and treatment, the yield of one square of land would equal that of at least two squares unmanured and of shallow tillage. The economic position would be this: half the land, half (or one third) of the seed (four and a half or five arrobas to the square would be ample), more or less half the labour, and half the fencing; against sixty or seventy cart-loads of manure on the spot, and only requiring to be spread, and a little more horse or ox power to draw the ploughs some three inches deeper in the soil.

The land most advantageous in the average of seasons is that which is neither very high nor very low, with a good depth of black earth—*i.e.* vegetable loam—on the surface; and where there is a choice of sites, such an one should be selected.

Divisions marked **XXXX** could be used for grain-producing, and any other crops that might be useful. If one or two of these spaces sufficed for the supply of grain, the others could stand as extra potreros until required for tillage. On the same land corn could be sown for a couple of seasons, or perhaps three, without material diminution of yield, if well tilled and well cleaned. It

would then amply repay to manure, the cleanings of the sheds and corrals finding here a convenient and profitable outlet, instead of being left to accumulate about the place, and causing dirt and disorder. After manuring a further succession of full crops could be obtained. If by that time more potrero room should be required, this corn land could most advantageously be laid down in perennial grasses, such as form the permanent meadows and pastures in Europe, and which I know, from experience, form in this country an admirable and productive sward.

A.B.C. represent corrals for three ' lots ' of rams, each with a shed, long, narrow, (11 to 12 feet), and not too high, open in the front and partially closed only at the back, so as to have thorough ventilation, and, from their narrowness, affording every facility for drying. Wide sheds can scarcely ever dry, and are consequently inconvenient, dirty, and unwholesome.

At the end of the shed C, it would be convenient to place a granary and store-room for all useful items and remedies that would be required. D would probably be a convenient locality on some establishments for the corrals of the borregas.

Divisional or interior fences, with five or six wires, render ditches unnecessary, except, when, from the nature of the land, it would be advisable to carry off the water by means of open drains. The size of the potreros would depend on the number of rams intended to be kept in them ; and again, on the quality of the land, and the facilities provided for relieving or supplementing the natural pasture.

One of the most interesting considerations in connection with the union of agriculture and pasturage is the adaptation of forage plants and artificial grasses to fill the

blanks which the seasons leave in the supply of natural or indigenous herbage.

Alfalfa (lucerne), on lands of good quality and situation, is one of the most productive and permanent of the 'leguminose' varieties, and, in common with the species beans, peas, vetches, porotos, clover, lupines, &c., is of a high nutritive value. It is probably unsurpassed in durability and product on suitable land, for mowing, for soiling, or hay, when it is liberally and carefully treated; but it is not so well suited, and it dies out much sooner, if depastured, especially by sheep, whose close biting injures the crown of the plant, and causes it to rot. Moreover, it cannot be kept clean as a pasture; trefolium, grasses, chickweed, and various strong weeds, quickly appear in it, and hasten its decay and disappearance.

It likewise requires time for the preparation of the ground and for its growth before it becomes productive. Only in the third year after breaking up the land, supposing it to have proper tillage, cleaning, and general treatment, can an alfalfa be considered productive. For these reasons it is very desirable that other artificial true grasses should be introduced, not by any means to the exclusion of alfalfa, but to meet requirements when the alfalfa falls short in degree.

The 'Bromus schraderii' is an exceedingly productive grass, both in herbage and seed, and suitable for dry climates,—a cut-and-come-again plant, that can be mown and grazed alternately during a season. Sown in the autumn, or early in the spring, it matures in a few months, and is of such strong growth, that scarcely any other plant or weed can hold its way with it. It is relished by all animals—cattle, horses, or sheep—and, in all likelihood, will be found very useful on our farms. It is very easily 'saved' as hay, as it dries rapidly, and is

not, like alfalfa, liable to injure or mould,—matters of considerable importance in ‘campo’ farms. The cultivation or tillage of the land is simply that of any other crop. Plough, cross-plough, and harrow fine, and cover in the seed with harrows and brush. It is a sub-perennial, from its abundant seedling, readily reproducing itself, if allowed to ripen one set of seed-shoots in the year.

I have already made reference to permanent grass pastures of perennial varieties. I am grazing a paddock laid down with a mixture of grass-seeds commonly used in laying down grass on good loams in the British Islands—‘fescues,’ meadow grasses, cocksfoot, perennial rye-grass, timothy, &c.—which gives me the highest satisfaction, yielding a large amount of feed, and growing and spreading under conditions and at seasons when the indigenous annual grasses fail; covering the ground with a sward absorbent of moisture, and protecting the soil from the sun. Sown early in the autumn, with a little barley, these grasses can be cut for soiling (green fodder) in spring, and depastured in the autumn, and will, undoubtedly, prove invaluable as potreros or meadows on the tillage-farms, for fine stock.

These suggestions comprise probably all that is needed for the highest development in sheep-rearing attainable for many years to come. The more laborious tillage operations, and cultivation of forage crops, such as turnips and the like, for sheep, belong to a stage perhaps yet far distant, even on the most advanced establishments, and need not therefore be treated of here.

## XI.

It may, on first thoughts, be considered premature to treat of agriculture in connection with cattle-feeding; but, as I have already remarked, it is becoming a pressing

necessity to produce *good beef* for the town consumption, and for salting for foreign markets. The benefits accruing from the higher-bred animals—shorthorns and Herefords—which exist and are multiplying in a few hands, cannot be realised without a system of at least partial fattening; and we can never have wholesome beef in the city, nor a trade in beef preserved by salt or otherwise, until farms in the vicinity of the cities, convenient to ports or along lines of railway, are in part or wholly devoted to this very important branch of industry. ‘Cattle-feeding’ is a term which conveys the idea of an European system, with all its appliances; but we have, by no means, reached that stage, and there would be no likelihood of such a system paying in the present generation. Cattle-feeding, however, can be adapted to circumstances, and determined in its details, by the circumstances of climate, products, and possible appliances, and the cost of the same. A fair return on the capital employed, the market value of the fodder consumed, and a fair rent for the land, with return of expenses, are the direct forms of gain on which the business should be calculated. The contingent profit that can be reasonably looked for is that arising out of the doubling the produce of the land through the instrumentality of the animals fed on the farm. This remark applies to farms where the business is confined to feeding; but where the business of breeding and feeding on a large scale and with large capital is carried on by, say, a company, it enters on all the advantages of accumulative increase and augmentation of values by reason of improved stock, as we have seen to be the case in sheep-breeding. By fitting the beef for consumption a manifold increased value will be given to the animals.

It is an industry that has to be created, and the ways and means of its economic conduct have yet to be un-

folded by practice ; and there is, undoubtedly, a crying need of some simple and practical system of preparing wholesome meat for the consumption of our city populations.

That which is required to put animals into sufficiently good and firm condition for all purposes of beef, is that they should be domesticated, and that they should have a sufficient and *never-failing* supply of fodder, or food of a quality sufficiently nutritious—strong feed—grasses which are not too young to have collected nutrient elements, and which have reached a stage of organisation sufficient to render them ‘fattening food,’ but are not so old or over-ripe as to have parted with their nutritious properties. The food best calculated to answer the purpose (it need not be turnips and oil-cake) is that which can be produced in the greatest quantity and most nutrient quality from a given space or extent of ground at the least comparative cost, and which can be provided or produced in the most suitable feeding state at the different seasons of the year. This being determined, consumers must of necessity pay for beef a price equivalent to the value of such food converted into beef. I may add that in my own experimental practice I have satisfactorily solved most, if not all, these material problems.

There is no help for it ; it is a law of economics that it must be so ; and there is no question that good, nutritious beef, at five times the cost per given weight, is cheaper, *per se*, than bad beef from which the greater part of its alimentary properties have been drained or wasted. The science and practice of agriculture must indicate the ways and means. The more advanced this science and practice are, and the more efficient the mechanical means brought into play, the more economical will be the conversion of forage into beef.

It is of the highest importance just now that this problem of beef-producing should have a practical solution on a sufficiently large scale. The cattle plague in Europe is reported to have made such ravages in the herds, that some years may probably elapse before the losses are replaced ; and this, coupled with the slaughtering of a large number of breeding stock, cows dried off in the great city dairies, and, above all, with the increasing *necessity* for flesh food consequent on the high-pressure existence, mental and bodily, engendered in this age of steam, of rapid and perpetual thought, of constant contact and friction, of sharp wits, and of accelerated movement, to maintain which food of the highest 'azotized' kind is needed, renders it more than probable that a large market will be open to fed meat from the plains of South America.

I am of opinion that isolated attempts on small farms cannot lead to this 'solution.' As a sequence, the feeding of cattle will naturally extend to farmers generally. But, in the meanwhile, establishments of sufficient magnitude, fattening a number of animals, to make an impression on the home consumption, or to supply a curing undertaking for export, will have to be set on foot ; and these must be in connection with either such curing business, or butchers' stalls, or both where the meat is properly killed and cut up, as in Europe.

An ample supply of food and water, regularly given to domesticated animals of cross breeds from English stock, is, as I have said, an essential. To provide this is the problem.

In this, as in the tending of rams, a series of potreros is a necessary first step ; and these must either be in direct or easy communication with permanent water, pure and wholesome, or have regularly supplied water-troughs. These potreros must be depastured in turn, allowing the grass to attain nourishing consistence before the animals

are allowed to graze on it. From the nature of our indigenous grasses and climate-influences, paddocks of artificial grasses, alfalfa, and others, would be needed to fill the blanks of the natural ones, as also to yield a larger quantity on a given space. It would also be necessary to have lands sown with fodder and forage crops, from which to supply soiling (cut fodder), &c., for the same purpose. Lucerne, 'sorgo,' bromus, meadow grasses, and broadcast-sown maize, as well as many others, are available to cut green; and also for the provision of dry food, such as hay, for the seasons when the green fodder has not sufficient consistence or fatting quality. For the same purpose, 'chala' (maize straw) might prove a useful auxiliary, and the grain would be available either for sale or consumption.

Borrowing the idea of one of the oldest of British agricultural writers, I may say that, in all that the farmer does in this matter, in all his arrangements, and with all the seed sown, he must mix one other little seed, which will assuredly bear him good fruit, and bring home good store. This little seed is called 'Discretion'; or, as we now-a-days express it, intelligence and judgment must guide every step.

Shed-feeding is, and will be, for a long time to come, out of the question; but large strongly-fenced yards, or small paddocks, with fodder racks, would be practicable conveniences for night-feeding, more especially for such animals as have attained an advanced stage of fatting, and require to be 'finished off,' or hardened, for slaughter. It will be clear to practical minds that essential elements of success consist in procuring a never-failing supply of pasture-feed in the most nutritious stage of its growth and in its most productive yield. Over and above this, food must be stored to meet all requirements; the economic arrangements of gathering and supplying it *without waste*

in quantities sufficient and not in excess, and in dispositions which will admit of the feeding being effected with the least amount of labour consistent with regularity being carefully observed. The sowing of the little seed, 'discretion,' with these matters, or its omission, may, in most instances, make the difference of a profit or a loss, of success or failure. There is no branch in the work of a farm which requires higher practical powers, or more complete knowledge of climate conditions, soils, products, and mechanical detail, than the embryo business of bringing the staple commodity of the country into a realisable condition; and it is earnestly to be hoped that the conduct of the first movement in this direction may fall into the hands of earnest and thoughtful, as well as practical men, and that they may be *fortunate*, as well as deserving, in the selection of a course of practice. There being no landmarks, it is hardly possible that we should not owe much to the 'genius of fortune,' inspiration, or induction.

## PART VII.

THE RIVER PLATE AS A FIELD FOR THE EMPLOYMENT OF  
CAPITAL AND LABOUR.

## I.

THE intimate commercial relations existing between Great Britain and the Rio de la Plata, and the very great number of British resident in these South American States as commercial men, owners of property of every description—sheep, cattle, and general farmers, tradesmen, mechanics, professional men, and labouring classes; the wide field for enterprise in commercial and banking undertakings, railways, lands, canalisation, colonisation, steam navigation, &c.—the cordial reception given to settlers, as well as the favourable terms or guarantees accorded by the legislature to joint-stock company enterprises, coupled with the rapid development of the national wealth, indicate these countries as eminently calculated to afford most favourable opportunities for the employment of British collective capital in joint-stock undertakings, as well as for individual capitals large and small, and for the immigration of the industrial classes of all denominations, without respect to creed, a perfect, proclaimed, and practical religious freedom existing.

Undertakings have been already set on foot, in

railway and banking companies, sheep-farming associations, mining companies, land speculations, canalisation of rivers, &c., representing many millions sterling, and year by year the rapid development of the resources of the country throws out additional opportunities and creates fresh necessities. There is a virgin richness and corresponding fertility which only require the magic touch of capital to call forth abundant returns.

The extent to which the rich pasture and fertile lands have passed, and are daily—I might almost say hourly—passing into the hands of the British settlers, marks beyond question the congeniality of climate and occupation, while it testifies to the advantages that have resulted, and are resulting, from their investments in land and in stock-breeding.

The great industries of the country, as stated in other parts of this work, are sheep and cattle-farming, with agricultural farms and mechanical trades.

The comparatively small money value of land, its absolute availability for immediate and profitable use, the low price of stock and the wide margin for its improvement, present advantages which are not surpassed, perhaps, in any part of the world.

Large capitals, whether of individuals or companies, have ample scope and opening in stock and land, and cannot fail to produce profitable results under ordinarily intelligent management.

Smaller capitals, even to the smallest—of a few hundred pounds—coupled with industry, find relatively equal advantages employed in lands and stock, or in stock alone, and nowhere is there a wider or more certain field for *accumulative* profit than is here afforded through the improvement of the stock, and by consequence also, through the increased value of the land.

To make good my proposition, I have only to set before my readers a fair statement of the case ; and in so doing I may probably dispel many erroneous ideas as to the ways and means of acquiring property and accumulating wealth.

So easy was it a few years ago to acquire property in land at a nominal cost of 500*l.* to 800*l.* per square league ; so trifling the price of sheep with which to stock it—8*d.* to 1*s.* each ; so wide the extent of land for them to increase over ; so little the trouble or cost in minding them—as a rule, there was no direct outlay in so doing, an interest being given to all comers in lieu of payment—that men, to use a figure of speech, went to sleep and became rich by the natural accumulation of their stock. But in addition to this, so rapid and great was the increase in value of land and stock, that in eight or ten years, through the increase and growing importance of the produce of the stock, lands rose in value tenfold ; stock likewise rose many fold in value. It will appear as a consequence, that, through the accumulative increase of the stock, its improved value, and the tenfold augmentation of the value of land, the parties who entered early into the sheep-farming business had a concurrence of extraordinarily advantageous circumstances, which made their fortunes without any effort on their parts. Nor did this extend to the land and stock-owners alone. The shepherds, who were paid for their services by a half-share in the increase of the flocks and half the wool, rapidly acquired property, and many were enabled to purchase land while it was yet at a low figure.

The report of these extraordinary successes naturally creates, at a distance especially, the impression that the like is to be achieved now, that property can be acquired without capital, and that the industrial classes can become

proprietors of land and stock by simply rounding a flock of sheep. Many arrive in this country, particularly from Ireland, with this idea, much to their own prejudice; many able-bodied fellows, when good situations and good wages are offered them in industrial occupations, answer that they came out here not to work, but to be proprietors and flock-masters, and seeking in vain their 'Eldorado,' become loafers in the 'campo,' addicted to *caña* (rum) drinking.

A right understanding of the state of things and what is required here, would be to the advantage of newcomers and established residents. There is an unquestionable 'Eldorado' in the Rio de la Plata, but it is for the industrious, the intelligent, the practical, and the enterprising.

Although lands have increased so much in value, they are yet, as I have said, at a low figure, and have many stages of equally important augmentation of value to go through. Stock, though of very much greater value than a few years ago, is still low in figure.

This industry has simply passed through one stage of its progress and now enters upon another, requiring merely the employment of more capital and more intelligent industry to yield again what it has already yielded—viz. : large and accumulative profits.

## II.

The value of *estancia* land, as a matter of course, varies according to its quality and position, its greater or less adaptability for stock-farming in general, and sheep-farming in particular, as the branch of rural industry which is steadily driving back to greater distances the cattle *estancias*.

The land in the province of Buenos Ayres being for the most part better adapted for sheep-grazing than that in other parts of the Republic, is rated at a higher value, at least in those districts which are considered within the sheep-farming radius (*i. e.* in those where the depasturing of cattle has 'fined' the grasses), and may be stated to range between 2,500*l.* and 5,000*l.* per square league. There are, however, some favoured tracts which have been sold as high as 8,000*l.* and 10,000*l.* per league. The price of public or 'state lands' on the frontier, as fixed by law, is 200,000*£* (paper dollars), or about 1,600*l.* and 400,000*£* for lands well within the frontier. There is, however, an agitation on foot which will induce a modification in the price of the frontier lands, and in the manner of disposing of them.

Owing to the difficulties and cost of transit to and from these lands, the more or less risk from Indian raids, and the disadvantages incidental to virgin 'camps' in the comparatively coarse and dense herbage which covers the greater part of them, and renders them, for the time being, less suited for sheep than those which have been 'fed off' by cattle, the government price of 200,000*£* is considered too high to induce parties to purchase and settle on them in any number.

In the Banda Oriental (or Uruguay) the sales of lands have been at prices ranging from 1,500*l.* to 3,500*l.* One or two unusually good and favourably situated estancias have been sold as high as 5,000*l.* per square league. The lands of this Republic are sold by the 'suerte,' which is, more or less, three-quarters of a league.

The Banda Oriental 'campos' will not, as a rule, carry so many head of sheep per league as those of the Province of Buenos Ayres. The grasses are stronger and coarser, and a considerable extent of woodland, which is more or

less general through the country, reduces the grazing area. On the higher lands, too, the rock is near to the surface and crops out in many parts, and there are numerous boulders, all of which reduce the grazing surface. On the other hand, the many streams afford a rarely, and in many parts a never-failing supply of water, and the wood yields a grateful shade for sheep and cattle, both of which thrive well and increase rapidly. Of late years, very many estancias have passed into the hands of foreigners, more especially those in the vicinity of Colonia, along the course, or within comparatively easy reach, of the river Uruguay, and on the banks of the Rio Negro.

In the province of Entre Ríos, there are extensive tracts of low land, frequently under water after heavy rains, and bearing coarse, hard, and rush-like grasses ; and there are also extensive woods. In some parts also, there is so much of the Flechilla, or arrow-grass, that sheep suffer severely, owing to its seed-sheaths penetrating through the wool and into the skin and flesh. In the northern parts of this province, this plague, coupled with the high temperature of the summer season, which super-induces fly-blow or maggot in the injured parts, causes many losses, and to a certain extent renders the sheep-industry at present undesirable. Hence the extent of good sheep-pasture does not bear so large a relative proportion to the whole area of this province as in Buenos Ayres, or even the Banda Oriental. There exist, however, tracts of land, more especially in the districts of Gualeguaychú, which leave nothing to be desired, and which are equal, perhaps, to anything in the Republic for sheep-farming ; and the very best of these are in the hands of British proprietors, and were purchased years back at mere nominal figures.

Cattle thrive very well in Entre Ríos, and attain a good size and yield a good hide.

The lands of the southern districts of the province of Santa Fé are similar to those of the north of Buenos Ayres, to which they are contiguous. With the exception of those in the more immediate vicinity of the town of Roasrio, they are, however, still crude and abounding in strong, hard grasses, which must be fed down before they become really good sheep-pastures. The sheep-industry is, however, spreading, and many estancias are owned by foreigners. The strong grass-camps of this province produce and feed some of the best cattle of the country, which, when carefully herded and not overdriven, yield a very fair 'mess beef.'

So luxuriant are the strong grasses in parts, that they attain the height of the cattle; and the thistle, which abounds in the camps of finer herbage, cannot find a footing. The more northern parts of this province are, as yet, unfitted for sheep-industry, owing to the nature of the herbage; and in part, too, they are at a disadvantage, owing to the high temperature.

Sales of land in the more suitable districts have been effected at prices varying from 1,500*l.* to 3,000*l.*

The province of San Luis contains very fertile land of the same character, and on the slopes of the hill-ranges and adjoining valleys there are, as in San Juan and Mendoza, large tracts of cultivated artificial grass, *i.e.*, lucerne or alfalfa, which are regularly irrigated, and on which cattle are reared and fattened.

Lands in the province of Cordoba are now offered at a mere nominal figure. Many of them on the 'Grand Chaco' frontier are represented as well suited for sheep of a strong, hardy class; the grasses are luxuriant, but as yet

strong and hard.\* The passage of the Central Argentine Railway will give access to these lands, and many agricultural and sheep-farming colonies will be formed on tracts granted for the purpose.

### III.

The estimated capacity of a square league of refined land for carrying sheep is from 10,000 to 20,000 head ; few, however, could be safely counted on to carry over 16,000 sheep, unless they are fenced in and trespassing cattle and horses excluded.

The value of sheep generally offered for sale is to-day much lower than the quotation of a year or two ago, owing to the necessity of relieving many establishments which have become overstocked, and to the expediency of weeding out inferior and aged animals and improving the remainder. The quotations for fair to good average cross-bred sheep are 25*£* to 35*£* per head, or, say, 3*s.* 10*d.* to 5*s.* 6*d.* as they run ; the better classes bear a proportionately higher value. After shearing, they can be had proportionately less, and average sheep have been sold at 18*£* to 20*£*.

The average yield of wool from this class of sheep is 3lbs. per fleece, and its value from 70*£* to 80*£* per 25lbs., according to present market rates—say 5*½d.* to 6*½d.* per pound. The deductions for carriage to market are graduated by distance. The wool of a few very superior high-caste flocks is worth from 20 to 50 per cent. higher.

The usual calculation of increase under the general system of management is, that a flock will double itself

\* The temperature is, however, high ; hence the wool is likely to be somewhat harsh and brittle.

in three years ; and this is ~~accumulative~~ so long as there is room on the ~~land~~ to receive and feed the increase. Thus, 2,000 sheep in three years would reach 4,000, and in three years more—in all, six years—8,000, and so on. Flocks composed entirely of breeding ewes would increase much more rapidly, as will be hereafter shown. The expenses of management are usually estimated at about one-fourth or one-third ; this, however, depends on the value of the stock, and applies to stock of average class.

As an investment of a considerable capital by a company, or of more limited capitals by individuals, there are sources of profit open to judicious management, apart from the direct returns in wool and average increase in the numbers of the sheep—viz., the increase in the value of land ; the wide scope for improvement in the class of sheep ; augmentation of the yield of wool, and improvement of its quality ; greater product of carcase, skin, and grease ; and the larger increase of numbers from a given proportion of stock kept. These are results certainly attainable through a more liberal employment of capital and more careful management than has been generally practised.

It is quite practicable, as I know from experience, to treble in a few years the returns from wool, and, by consequence, the value of the sheep as wool-producers, and more than double the product in carcase, skin, and grease ; but assuming an estimate considerably under this, there is assurance of a highly satisfactory return for money invested.

The estimated increase from cattle is more or less the same as in sheep, that is, they double themselves in three years. The annual sources of revenue from sheep are the wool, the wethers, and the surplus and aged ewes, and from

cattle, the 'steers,' or 'steers' (Novillos), and surplus cows.

The expediency of having cattle on a large establishment only partially stocked with sheep, and on which the herbage or pasture is strong and somewhat coarse, is undoubtedly. A direct profitable return will be obtained from the cattle, and by a judicious disposition in grazing them they will eat down the coarser herbage, and bring the land into better state for sheep.

This constitutes an economy by no means unimportant in the management of lands which, from their present condition as producing strong grass, and being a little outside of the present sheep-walk radius, can be purchased at half the price of lands of finer herbage, which have merely had the advantage of having been so depastured as to bring them into that better condition.

It will have been observed that I treat the cattle-breeding as subordinate to the breeding of sheep. In the first place, the practice of improving the cattle is not yet introduced; and in practice a course of treatment has not been determined which will bring into play the most important item of cattle products, viz. the beef. The land that is in good state will maintain, on a given area, a very much greater value in sheep than in 'native' cattle, under the ordinary course of treatment. Sheep, too, make an annual return in wool, in addition to the increase, while, to the generality of Europeans, the sheep-industry is more congenial. Working among semi-wild cattle is a speciality of the horseman of the plain, and the management of a cattle establishment requires some experience in the country and a knowledge of the language.

Where small capitals are employed, and the parties are new in the country, this branch of rural industry is not,

at present, a desirable undertaking. Where larger capitals are invested, efficient managers are obtainable; and in the more distant and cruder lands of Buenos Ayres, and on estancias in the Banda Oriental, Entre Ríos, &c., as I have explained, cattle are very desirable, as they materially accelerate the improvement and preparation of the lands to receive sheep advantageously. The business of improving the breed of cattle and feeding them for beef purposes is one in prospect and of immense future importance. Conducted on the system which I have sketched in other parts of this work, this business is calculated to solve the great 'beef supply' problem of England. It is not one which can be made 'to tell' by individuals of moderate means, but with a company of considerable capital, directed by the highest intelligence in the matter itself and by experience of the climate and the natural productions of the soil and its capacity for green crops, it cannot fail to succeed.

Although land is higher in value in Buenos Ayres than in other parts of the River Plate States, sheep, as the rule, are lower by reason of the greater number existing and disposable in that province.

It is convenient to submit an estimate of the capital required to purchase and stock land. We will take, as a basis, a single square league:—

Say one square league, of mean value . . . . .	£3,500 to £4,000
5,000 sheep, at 30s each . . . . .	1,250
Which, divided into four flocks, would require four stations, the huts or houses for which would cost from £15 to £25 each, according to their solidity; say £25 . . . . .	100
(If of brick and lime and with azoted roof, they would cost more.)	
Corrals or pens, say £15 each flock . . . . .	60
It will depend on the proprietor or purchaser as to the degree of refining he will pursue with his stock, what the cost of his rams may be. As 'time is money,' there can be no question that the introduction into his flocks of rams of superior class, yielding	
To be carried over . . . . .	£5,410

heavy fleeces and long, sound, stapled wool, is the best course;	Brought over . . . . .	£5,410
and at least in one or more of his flocks, rams of <i>high</i> class should be used. Rams, in any required quantity, can be had at from 200 <i>£</i> to 500 <i>£</i> each; but there can be no question that, if there is the capital, an <i>average</i> cost of at least 1,000 <i>£</i> (say £8) for <i>large</i> , vigorous rams of the right sort, would be true economy; the more costly ones, which might cost from 3,000 <i>£</i> to 6,000 <i>£</i> , going into the best flock. Say, 80 rams at £8 . . . . .	640	
Such rams as these are worthy of every care, and should be housed and looked after as I have explained in other papers; the 'plant' requisite for which may be set down at . . . . .	150	
		<u>£6,200</u>

1,500*l.* laid out in rams would be well-employed capital; in fact, the better and higher class the rams, always assuming the variety to be well chosen and the race acclimatised, the more rapid and greater the improvement and consequent profit; but it would be comparatively useless to use animals as reproducers which are not reared or trained to harmonise with surrounding conditions and not properly cared for.

The sheep I have put down at 30*£*. This is by the 'cut'; but the investor would do well to purchase—instead of 5,000—6,500, 7,500, or *more*, and select from these 5,000 of the best young ewes and ewe lambs, selling the remainder for what he could get, or killing them for the skin and grease.

Say that in so doing he raises the cost of his flocks by one-fourth, one-half, or even more, which, with fencing and sowing of alfalfa and corn, will bring up the cost of land, plant, and stock, placed on the most advantageous working footing, to 6,500*l.* or 7,500*l.* for every square league.

The wages of shepherds, for four flocks, would amount to about 15*l.* per month, or 180*l.* per annum, and care of rams 45*l.* to 50*l.*

The first year's clip would yield, probably, somewhat

over 600 arrobas of wool, value 380*l.* If the flocks are composed, as I have recommended, of all ewes, and the rams be sound and vigorous, an increase of 80 per cent. of breeding ewes may be fairly calculated on; so that in two years the number of, more or less, 12,000 head may be counted, of which some 3,500 may be males, which will be realisable: those from the less high-caste rams, if the establishment be within reach of a market, will be saleable as wethers; if out of the reach of a market, they will be available for steaming; and those from the select flocks and best rams, as sires for use or sale. It will not be too much to estimate these 3,500, at the age of 18 months, to be worth, one with another, something like 10*s.* each, equal to 1,750*l.* There will remain as breeding stock, of ewes and ewe lambs, 8,500, which, from the improved quality of the 3,500, should yield a clip of nearly 1,200 arrobas of wool, in value about 750*l.*

Up to this point, no material increase of charge for herding (*i.e.* for shepherds) will have been required.

Taking stock at this point, allowing for the better quality and class of the young stock, we may assume:—

8,500 females, representing	£3,300
3,500 males, representing at 10 <i>s.</i> each	1,750
(1,000 rams and 2,500 wethers).	<hr/>
	5,050
Rams	640
	<hr/>
	£5,690

Wool sold, say £1,130.

There will now be required additional stations or *puestos*, and additional rams, yearly—some of high caste—purchased, others taken from the best-bred on the establishment.

It is in the succeeding period, or ‘term,’ that the accumulative increase tells; and it is quite within bounds

of fair calculation to say that, in the three years of the second period, the wool sales will average 2,000*l.* to 2,500*l.* per annum; that the stock existing and realised in wethers, rams, and old ewes sold, or steamed down, will represent a value equal to 14,000*l.* at the end of this second period; and that the land and plant will represent a marketable value of 6,500*l.* to 7,000*l.*

To elucidate the progress of increase I give the following table, from which it will be seen that the foregoing estimates of probable returns are within the mark.

Assuming that the stock commenced with consists of 5,000 head, say in January, 1865, and that these comprise—

	4,000 Breeding ewes.
	1,000 Ewe lambs.
1866.	
4,000 Ewes drop	1,600 Male lambs.
	1,600* Ewe lambs.
	(Lambed in April & May.)
Original stock	5,000*
	<u>8,200</u>
1867.	
5,000 Ewes lamb	2,000 Males
	2,000 Ewe lambs.
Previous year's stock	8,200
	<u>12,200 head.</u>
1868.	
6,600 Ewes (5,000*, and 1,600*) lamb	2,600 Males.
	2,000 Ewe lambs.
Previous year's stock	12,200
	<u>17,400</u>

1860.

8,600 Ewes (5,000, 1,600, and 2,000) lamb . . .	3,440 Males.
	3,440 Ewe lambs.
Previous year's stock . . .	17,400
	<hr/>
	24,280
	<hr/>

1870.

11,200 Ewes (5,000, 1,600, 2,000, 2,600) lamb . . .	4,480 Males.
	4,480 Ewe lambs.
Previous year's stock . . .	24,280
	<hr/>
	33,240 { head at shearing time, 1870.
	<hr/>

It will be observed that I have retained the full number of ewes throughout, and calculated the increase at 80 per cent. of the same. Such an increase presupposes the management of the flocks and the care of the rams on the system I have recommended in the treatise on Sheep-farming and Agriculture.

I have made no deductions for deaths, or for sale or slaughter of the old ewes. I believe, judging from my own experience, that, under very careful management and good average seasons, the losses (deaths) will be replaced by the increase in excess of the 80 per cent. which I have calculated. A fair allowance, however, may be made to cover losses, or weeding out, of the inferior and elder ewes, and deducted from the sum total as contingencies.

It is not to be supposed that these 33,240 head, or, say, 30,000, allowing the 3,240 against losses, would exist on one league of land. All the wethers, we will presume, have been sold or killed, and all rams bred from the best flocks, sold; say, more or less, 9,000 males disposed of as they attain saleable age; leaving ewes and lambs, 21,000.

The rams, we will assume, have been such as I have

recommended; in consequence, the sheep and their yield of wool will have greatly improved and augmented. If we exclude the old ewes of the original stock, or assume that they have, for the most part, died or been drafted, then, if the right class of rams have been used, the average of the wool-yield per sheep cannot fail to have been doubled, and the number of the males bred and retained as rams, for sale or otherwise, will have been worth from 200*£* to 500*£* each, so that it will be within the mark to estimate the whole of the stock that has existed—existing or been disposed of up to shearing time, 1870—to represent a value of 10*s.* or 12*s.* each.

The augmentation of the weight of fleece per sheep will be manifested chiefly in the third, fourth, and fifth years' clip; and it is more than probable that an average of over 6lbs. per fleece may be obtained in the fifth year, with a considerable increase of relative value. Under such circumstances, it is within fair calculation to estimate the clip of 1870 at a value of over 3,000*l.*, assuming 16,000 sheep shorn.

On the usual system of management with rams of low value, say 200*£* to 500*£* each, the calculation under good average circumstances is, as I have said, that flocks double themselves in three years. Thus, 5,000 sheep would give 10,000 in three years, and 20,000 in six years, with the weight of fleece and value of wool stationary.

The facilities for the sale of wethers for the butcher depend altogether on the situation of the estancia. Distant establishments, and most of those in the Banda Oriental and Entre Ríos are at a disadvantage in this particular; and this circumstance undoubtedly affects in some degree the prices of land in these parts.

The relative cost of management, shepherds, &c. is

affected by the value of the stock. It costs more per head to take greater care than that usually bestowed on flocks, as it does also to carry out a better and more complete system ; but this is more than compensated by the smaller direct loss in the sheep, the percentage of costs and charges being relatively much higher on sheep of comparatively small value. The amount of management charges is also affected by the residence or non-residence of the owner on an establishment, rendering necessary or otherwise the employment of a manager, the extent of the estancia, number of flocks, and the staff required to overlook large concerns.

There are, as a matter of course, certain items which it is needless to enlarge upon, as they apply to all businesses and are well understood by business men.

I have in another part of this work indicated the great advantages derivable from fencing or enclosing estancia lands. The difficulty of doing this arises from the want of capital and enterprise of the majority of the sheep-farmers. There is no doubt, however, of its advisability ; and I do not hesitate to say that by so doing a farmer would more than double the capacity of the land for carrying stock, thereby abundantly recompensing the outlay, and I earnestly recommend the practice.

The Government or public land question is one that is at present much discussed. The traditional 'clinging' of the governing powers to the public lands in the expectation of obtaining high prices at some future date, and the putting of a minimum price on the lands which they offer in the market, is one of the great errors of legislative and political economy which restrict enterprise and national development ; but it must be admitted that the question is one which presents difficulties in its solution. There is a wide field for 'jobbing' involved in it, and the

Legislature is naturally jealous of innovation which might give rise to such a result.

Public opinion is fairly awakened and is passing through the usual 'throes' preparatory to its definitely pronouncing itself and resolving into action.\* As I write this the Government has met with failure in an attempt to auction lands, fixing a minimum price considered to be above the market value. Distant unsettled lands, as involving risk and some considerable outlay in 'settling' and stocking them, must go for low figures to induce settlers to take them; and some of the frontier lands would, as far as the public interest is concerned, be advantageously disposed of if given away with exemptions from taxes and military service (other than guarding the possessions themselves), on the condition of 'settling' them; and I am led to believe that the Legislature would be disposed to give lands, situated at different points of the frontier, for the purpose of colonisation, to individuals or companies with sufficient capital to put a minimum number of families with flocks, herds, and horses on the same. Several 'projects of law,' that is, 'measures,' are prepared for introduction into the Chambers, and will probably have been published before this work reaches the public, the tenour of which is the granting in fee-simple of frontier lands. It would perhaps be unseemly to criticise embryo projects which have come to my knowledge by the favour of the projectors, but I may say that their practical working, supposing any of them to become law, depends mainly on exemption from trammel of detail. Grants of land on more or less exposed frontiers would be ineffectual unless the proposed grants were of sufficient extent to admit of a strong and comparatively

\* Since the first edition was published a land law has been passed in a liberal spirit, and public lands are now in the market at their fair value.

concentrated settlement, and made to persons or companies with means sufficient to settle and stock them on the principle of colonies ; the settlers acquiring a right in fee-simple to a portion, say half the land occupied by them, and to have half the increase of stock under agreement with the 'grantees ;' the settlers, if foreigners, to retain their rights as such, and be subject to no other service than that of mutual protection under direction of the resident representative of the grantees ; and if natives, to be exempt from all military service other than that of the protection of the colony for a term of years. These settlements once fairly established and stocked, the surrounding lands would assume a value, however small at first, and it would be the interest of the country to sell them in lots annually at any price that a public market might establish.

Frontier grants, and subsequently the adjoining lands, would be advantageous investments for enterprising capitalists, and would afford good opportunities to hardy and adventurous settlers, who would acquire, say, half a league of land in fee-simple and sufficient stock for the same in the course of perhaps four or five years.

Lands already settled and well within frontier lines can, as I have stated, be obtained in the Banda Oriental, Entre Rios, Santa Fé, and Buenos Ayres, at a range in value from 1,500*l.* to 5,000*l.*, and these are available for investments of individual or joint-stock capitals to the extent of from half a league to ten or twenty leagues, or any extent, in one or more establishments ; and such investments, with an efficient agency or direction, as I have shown, are certain to afford profitable results.

There is ample room and opportunity for settlers of every extent of capital ; for instance, parties desirous of settling in these countries, and not possessing sufficient

capital to purchase and stock one or more leagues of land on the basis I have thrown out in calculation, can find lands and stock of less cost.

Practical and enterprising young men of small means, sons of country gentlemen, farmers, professional men, any men indeed of industrious habits, and resolved to work their way, could most advantageously combine to purchase a tract of land, stock it, and themselves occupy the stations (puestos), and take care of their respective flocks, and thus effect an important saving on small capitals. Others of less means, again, could purchase stock and rent land, which they can do at rents from 25*l.* to 60*l.* per annum for a 'run' capable of maintaining, more or less, 2,000 sheep. Land is obtainable on rent per 'run' or 'runs,' or per half-league, or one or more leagues. Parties of still smaller means can purchase half a flock and arrange with owners of land to join such half flock to an equal number furnished by the owner of the land, and take charge of the same on the land, such charge or care being taken as an equivalent and lieu of rent. Numbers of young gentlemen, as well as small farmers, have settled in the country on these terms; mercantile clerks and men of the industrial class who have saved out of their earnings, are constantly abandoning the desk or their trades to enter into arrangements of this class, or to purchase sheep and rent land; and with ordinary care and constancy they do very well on camps which from their distant position are obtained on purchase or rent at reasonable rates, always provided that capital sufficient is employed to provide the requisite conveniences for the care of an improving stock and the reproducers with which to refine it.

## IV.

The river Plate affords bright prospects not only to the possessors of capital, but to the industrial classes of all grades. No man need want employment for a day who can work; and working, he will earn good wages in every class of labour and every trade. Moreover, good conduct and constancy lead to advancement, and constancy and labour at high wages, and small or no expense in living, enable a man to save considerable sums, with which he can enter into some trade, or stock-breeding. I have already said that in every branch of working trade, there are numbers of our countrymen thriving, well to do, and with realised fortunes. In almost, indeed I may say in every instance, these parties have come to this country as journeymen, and from the high wages obtained, have soon been able to save sufficient to furnish workshops for themselves. In like manner, for agricultural labourers, as well as for any man who can handle a spade or a pick, wheel a barrow, drive a cart, or herd a flock of sheep, employment is never wanting, and the supply of labour is very far short of the demand.

I will enumerate the classes, or some of them, for which as 'settlers' there are unfailing and increasing openings and work at good wages :

Gentlemen with from medium to considerable capitals, possessing some knowledge of, or at least a taste for, country pursuits.

*Enterprising young gentlemen*, farmers, farmers' sons, having an industrial training, and possessing moderate or even small capitals, say 1,000*l.* and upwards.

*Skilled agricultural labourers*, ploughmen, reapers,

mowers, and men who can use agricultural instruments of modern construction ; hardy, sober, and industrious young men, handy and intelligent.

Such men readily obtain work at good wages, with every prospect of increase of wage and advancement to situations as under farm bailiffs and bailiffs.

The wages of an agricultural labourer of this class are from 350*£* to 400*£* per month, with board and lodging, equal to about 2*l.* 15*s.* to 3*l.* 5*s.* per month, which, with board and lodging found them, makes the wage amount to from 4*l.* to 5*l.* per month. Ordinary labourers 300*£* per month.

*Shepherds*.—There are many openings for intelligent and skilled shepherds, equal in wage to skilled agricultural labourers, with excellent prospects of advancement as over-lookers, &c.

*Shepherds and flock-tenders*.—Any man of sober habits, accustomed to country work, can easily obtain a situation as flock-tender, at a wage more or less equal to that of ordinary farm-labourers, with lodging and flesh meat found him.

As I have previously stated, in years past this class of men easily obtained sheep on shares—half increase and half wool—as, owing to the then extremely small value of sheep, this was considered equivalent to a wage of 200*£* to 250*£* per month, and freed the flock-masters from cash outlay. Subsequently, and as sheep became of greater value, this interest was reduced to a third, then to a quarter, and, ultimately, to a quarter without wool ; but now the majority of flock-masters decline to give any, especially when the flocks are of better than average quality, and when a system of refining or improvement is followed ; as in such cases it is absolutely requisite for the flock-master to have the full control of his stock.

Every year, therefore, the system of a fixed wage in cash will become more general.

This is likewise, under present circumstances, more to the advantage of the flock-tender than an interest in the sheep. Land not being obtainable for the once nominal sum, either to purchase or rent, the flock-tender who has had an interest in the sheep finds that his two, three, or four hundred sheep at the expiry of his contract term are a clog to him, and he has perhaps no option but to sell them at a sacrifice.

On distant establishments approaching the frontier lines, on large newly-formed sheep-farms, or on large cattle-farms that are undergoing the transition process from cattle to sheep (on which probably the sheep at first introduced may not be of particularly good quality), with ample or superabundant extent of land for the increase, shares will probably be given, as both parties may desire. On such establishments, young men with small capitals sufficient to purchase half a flock, would find a location to their advantage. I know some establishments where small 'colonies' of young men, six, eight, or ten, have settled down on adjoining 'runs,' much to their moral, intellectual, and material advantage.

There are many young men, with more or less capital, who have already come to this country, and many more will naturally flock to it. Favourable as the country and the business of sheep-farming is when properly practised, the inexperience of those who propose to enter into it presents a difficulty, and, as strangers to the country and the language, these young men are greatly at a disadvantage on their arrival out here. It has struck me that one of the most desirable things to be done is the formation of a company or companies, under able and experienced management, for the prosecution of this industry on

a scale and with capital sufficient to ensure maximum results, in which the parents of young men or the young men themselves could become shareholders; or, if of industrious habits, such young men would be eligible for the posts and stations of the company, with prospects of promotion after undergoing the requisite training on the establishment, attached to which might be a training college, self-maintaining, which would result to the benefit of the young men and of the company, through the efficiency of the men who had been trained in it. This could be brought about if a few gentlemen of standing and capital in England would put themselves in communication with settlers on the River Plate who may be thoroughly qualified to work out such an undertaking.

*Artisans* of all trades, from the cobbler to the iron ship and engine builder, from the tinker to the watchmaker, blacksmiths, joiners, carpenters, builders, &c. &c., are much wanted, and would find immediate employment at from 1*l.* 15*s.* to 2*l.* 10*s.* per week.

*Domestic servants*, male and female, form another class of desirable immigrants, and could find employment immediately at wages of 2*l.* 10*s.* to 3*l.* 10*s.* per month.

I believe that many educated young men have come to this country under the impression that to get a *puesto* with a small interest in a flock of sheep is an easy matter, and at the same time a somewhat brilliant opportunity. I think it only a duty to young gentlemen who may think of settling in these countries to correct any such impression. To serve as a *peon* or flock-tender in a solitary hut without other means than what he may derive from his quarter interest is not the life for a young gentleman with brains, or aspirations after social position. To live alone, to be his own cook and everything else, to

have no surroundings—I will not say ‘comforts,’ but common necessities of his position—a stretcher for his bed, a deal table or no table at all, and a bench, stool, or chair as his furniture ; to have to pick up a few thistle stalks, or take the dung from the sheep corral for his fuel, and cook his bit of meat on a fire made of these in the middle of his hut, is not a mode of life calculated to elevate, and almost inevitably leads to the reverse ; especially if neighbouring flock-tenders are men who can neither read nor write, and are addicted to spirit-drinking. On the other hand, a young gentleman who has means sufficient to purchase a flock or even half a flock of *good* sheep, and to surround himself with some of the comforts of civilised life, if located with other young men of his own social standing, can do well for himself, and it will be his own fault if he does not hold his moral and social position.

I have stated in this work that sheep-farming has entered or is about to enter on a new phase, and this will present opportunities for young gentlemen with a knowledge of the management of this class of stock and its accompaniments. Possessing a fair practical knowledge of these matters learned on British or German or other European or Australian stock farms, he will readily adapt his knowledge, after a little experience out here, to the requirements of this country, and will be eligible for situations of trust in the management of establishments. Capable assistants, sub-managers, &c. will undoubtedly be at a premium, and young men, after filling such situations, will, after a time, be competent to fill the higher situations of local managers. Good conduct, industry, and intelligence in their business will ensure their promotion, and ultimately, in many cases, an interest, which is the customary practice with able managers and directors. It is highly probable also that establishments will be formed

for feeding cattle up to a point that will make their flesh available for preserving and curing, and such industry would present openings for competent hands.

## V.

It is not alone on the plains of the littoral provinces of the Argentine Republic and their pastoro-agricultural industries that favourable opportunities are afforded for the employment of capital and labour. The interior provinces—Salta, Jujuy, Rioja Catamarca, Cordova,\* San Juan, &c.—with their great mountain ranges of igneous rock, are rich in minerals—lead, silver, copper, gold, iron, &c.—and only await the direction of capital and labour to yield their mineral wealth in vastly greater quantities than they now do; and in addition to this, every variety of tropical and semi-tropical products is cultivated in greater or less quantity—coffee, sugar, tea, tobacco, indigo, cotton, spices, fruits, and wines. Most valuable hardwoods, dyes, and medicinal vegetation abound. Many of the hardwoods and timbers are marvellously durable, and very valuable for house and ship-building purposes. Nor are animal products wanting. The mountain slopes and valleys give us, and are admirably adapted to the breeding of, the alpaca, vicuña, llama, guanaco, and the native goat crossed with the angora; they also give us sheep of long wool available for material improvement by crosses of the English long wools and others, as well as cattle, on the slopes and plains. Already many British and other foreigners are devoting themselves to the goat and sheep industries in the province of Cordova, the lands on the hill

\* Several exceedingly rich copper mines are now working in Catamarca and Cordova, in which the percentage of both copper and silver is very high.

slopes and on the southern plains being remarkably well adapted for them. The indigenous sheep of Cordova, Santiago, Tucuman, and other adjoining provinces, crossed with the large-framed English long wools, will, as already stated, form a breed of great promise, well suited not only to the slopes of the hill ranges, but probably to the somewhat strong pastures of the southern plains of this province and the adjoining lands of Santa Fé and San Luis. There have been several considerable purchases of land recently made at Frayle Muerto and establishments formed on them, by a number of enterprising English gentlemen, in adjoining lots of various extent from four to nine square leagues; some sixty or eighty more square leagues are taken up at that place, purchased at prices ranging between 800 and 2,000 Bolivian dollars, equal to 120*l.* to 300*l.* per square league. These are frontier lands, and are of course somewhat exposed, necessitating special precautions on the part of the settlers and the erection of forts garrisoned by a few troopers maintained by the government. The grasses of these lands are at present by no means of good quality, and the temperature is somewhat high for sheep.

These great 'alfalfa' or lucerne irrigated meadows on or near the slopes of San Luis, San Juan, and Mendoza, where cattle are fattened for the Chilian market on the other side of the Cordilleras, will (as these provinces are brought nearer to a market and seaport on the east coast of South America by the railway in course of construction,) contribute their products of cattle and of sheep to the trade of the river Plate, and present opportunities for settlers. That wonderfully fertile province, Tucuman, will become easily accessible to capital and enterprise; and its sugar, coffee, tobacco, indigo, &c. &c. will swell the trade of the Rio de la Plata.

In the fertile Catamarca, as in San Juan, Mendoza, &c., immense crops of artificial grasses and cereals are produced under irrigation, which is easily effected by means of the numerous rivers and streams which flow from the mountain and hill ranges ; and their capacity for the production of wine, spirits, and dried fruits is unlimited. The innumerable islands in, and the lowlands on the banks of, the Paraná, produce delicious fruits, excellent potatoes and vegetables, and many of them are well suited for the production of rice. The yerba tea plantations of Corrientes and Missiones are of great promise.

There are, indeed, marvellous riches, mineral, vegetable, and animal, in these more distant provinces, which only require the railroad to hand them over to the capitalist and to industry. And this is at hand. The Great Central Argentine Railway now in course of construction from Rosario on the Paraná, through the provinces of Santa Fé and Cordova to the city of the latter name, will be a main artery from which there will be many branches. The canalisation of the Rio Salado, in course of operation, will open water communication with the most distant provinces ; and in the wake of the steamer and the locomotive follow enterprise and industry, capital and civilisation, peace and prosperity.

CIRCUMSTANCES OF COLONISATION, AND PHYSICAL CONDITIONS DETERMINING THE HABITS AND CHARACTERISTICS OF POPULATION, AND AFFECTING POLITICAL AND SOCIAL INSTITUTIONS.

A CURSORY historico-philosophical sketch of the River Plate States and their political and physical conditions, immigration, locomotion, and industrial undertakings, as determining character and as modifying influences, will not be without interest in this volume, as affording data for comprehending the past and estimating the future.

The brevity which circumstances render advisable or necessary will detract from the completeness of the treatise, though at the same time it may supply all that the general reader may desire to know of the political complications and the prevailing influences of a far-distant and, in an European sense, non-historical country.

The colonists of the States of the River Plate were of the Spanish race, which, let the immediate cause be what it may, has proved one of the least successful colonisers. I do not propose here to demonstrate whether there were or were not causes, inherent in the race itself, which may have primarily led to this result, but merely state the fact, and proceed to note some of the effects which are directly connected with the accidents of colonisation in the South American continent.

It is noticeable that, on this continent, the majority of the Spanish settlements were effected in districts yielding the precious metals, and that the indigenous populations were used as instruments for their acquisition. To the East and to the West of the Cordilleras de los Andes and along the course of their numerous spurs, gold, silver, and other metals constituted an immediately available source from which the adventurous conquerors could, by the cruel enslavement of the indigenous populations, draw untold wealth. How remorselessly they used this means, literally blotting out whole nations and destroying entire races by their cruel exactions of labour in their greed of gain, history records. There was but one thought, and that was of gold, perverting intelligence and religion and deadening the sense of humanity ; and withal its acquisition was impoverishment, inasmuch as that which was gained at the cost of blood and life was removed, and nothing commensurate created or restored : there was continual drain, demoralisation, and exaction.

The adventurers, for the most part, were arrogant as a class, having little direct relation with industry. The restless spirits of the best blood or of the more intelligent classes of Spain went out to the lands of their 'Eldorado' less as colonists than as booty-seeking conquerors ; and those of the industrial classes who accompanied them, or followed them, did not, as a rule, go as independent industrial colonists, but rather as dependents of their leaders and as the ministers of their exactions, or as tax-masters over the enslaved indigenous races.

In the districts surrounding the sources of mineral wealth, there was profusion and luxuriance of tropical and sub-tropical vegetation : sun and shade, and flowers and fruits, the arid plain and the rugged mountains with their snow and cloud capped peaks, giving zest by

the contrast which they presented. The physical law of nature prevailed, and the dominant race, in contact with these conditions, and acquiring with facility through the instrumentality of the native population whom they crushed and enslaved, fell under these influences and revelled in habits corresponding to them—luxury, indolence, improvidence, and impatience of control.

The nature of the pursuits of these adventurers and colonists led to the gradual agglomeration of comparatively limited populations in many small centres, more or less distant from each other, and having little intercommunion. For several of these small centres there was a common port of embarkation, far removed and reached only by tedious travelling and with toilsome transport by means of mules, or of men who were made to serve as beasts of burden. The wealth torn from the earth was sent away and brought no equivalent material return. The settlers, whose luxuriant squanderings were thus supplied, had no thought of replacement, and aimed at no permanent improvement. Lines of ravage were almost the only landmarks, and no anchors were heaved out to hold on to in the future. The creation of the colonists was, virtually, dismemberment; and there grew out of this state of things a restlessness, recklessness, unscrupulousness of acquisition, and imperiousness, giving rise to jealousies and rivalries, under forms according with the prevailing habits of life. The various small centres of populations, in expanding degree, became scenes of those party rivalries which are common to all small communities out of reach of, or little influenced by, larger external worlds; while at the same time habits which eschewed direct labour or connection with industrial pursuits gave rise to a disposition to make the public service subservient to private gain, and to the grasping

and holding of authority or power in every grade as a means for the attainment of wealth, the readiest way to which was violence, the instruments and victims being the scattered populations, who were defenceless in their isolation.

The influence of local conditions in the different small centres gave rise to differences of mental and physical constitution in the various populations, and when later on a combination of these heterogeneous populations threw off the rule of the mother country, it became almost impossible to hold the parts together; there was a total absence of the elements of cohesion, and an inevitable tendency to contention and intestinal warfare. The difficulties of intercourse, arising from distance and from rudeness in the means of locomotion, hindered even an approximation to that homogeneousness which constitutes political stability and union; and where union was conventionally imposed, the distances from the central governing power rendered such power inoperative or of slight hold, while individuals of local status with ambitious or marauding tendencies had it easily within their power to change or subvert the government—conditions which have borne fruit in the revolutionary character of the Spanish American republics.

The 'accident' of Anglo-Saxon colonisation in North America—apart from the inherent aptitude for colonisation generally accorded to the race—produced results totally different from the Spanish.

The physical conditions of the territories which fell to the lot of the Anglo-Saxon were favourable to the genius and habits of the race; and many circumstances, apart from those which related to the territory colonised, influenced or determined the class of population which emigrated to them.

The wealth derivable from those territories was, for the most part, to be achieved only through industrial pursuits, which involved, in most instances, the direct labour of the settlers themselves, and the forming of permanent homes. The products were bulky, and required not only labour but time in their production, and this rendered it necessary to retain a full share of the fruits for the creation of such permanent homes and the acquisition of appliances for industrial pursuits ; hence there was transplanted from the mother country the habit of respect for property and law and an interest, direct and universal, in the stability of society. The necessity for convenient transport led to the adaptation of the means ; and the natural facilities presented in its broad paths were turned to use with singular felicity. The grand features of the country excited ingenuity and aroused energy, and means were forthcoming to conquer the obstacles which nature in her rude grandeur presented to those who sought to reap from her store.

Thus grew up a homogeneousness based on identity of interests and on the general character of pursuits which involved persistent exercise of energies, whether it were the felling of mighty forests, the floating of the huge blocks of the felled timber, the clearing of lands, or their subsequent tillage by the husbandman.

The climate also took its part in determining the condition of men, rendering 'homes' and the provision of homesteads a paramount necessity. In short, the climate and the pursuits of men, in relation with nature's grandeur of moulding, were alike opposed to enervating influences, and have given rise to an industrial and political energy which finds no parallel.

The political institutions of the North American States colonised by the Anglo-Saxon, which were sought as

models for the states of the Southern continent, produced there totally different results, owing to differences in the conditions of men and in the circumstances under which these institutions were applied. There existed in the Northern continent elements of cohesion, extraordinarily developed means of locomotion and transport, which were totally wanting in the states of the Southern continent, and which are only now forming in the River Plate.

To the general features, circumstances, and results of Spanish colonisation the Platine States form no exception.

It needs but to note their geographical position, to recognise the vast tracts of country occupied by them, to conceive the great range of temperature represented in them, and mark the many distant small centres dotting the ranges of the Cordillera de los Andes and their great spurs, and the courses of the rivers La Plata, Parana, and Uruguay, if we would estimate the difficulties and tediousness of transit between the interior and the littoral, in the presence of the primitive appliances of locomotion which prevailed (the mule-pack and the rudest of ox-carts), entailing months of travel to exchange the ores, dried fruits, and various vegetable and animal productions, or the trifling hand-wrought textiles—the work of women of the interior—for the necessities of foreign manufacture.

Wide is the difference of physical features and various the climates presented by the tropical or subtropical provinces of Jujuy, Salta, Tucuman (which, with their many grades of surface elevation, represent a capacity for numerous products: sugar, tobacco, cotton, indigo, timber and dye-woods, cereals, fruits, and animal products—wools, hides, skins, &c.) the mountain ranges of

Catamarca, rich in minerals, her fertile valleys nestling among the Andes and their spurs, mountain and hill slopes affording conditions for numberless vegetable productions, which find congenial temperatures on the various altitudes ; the cacti-growing plains of Santiago de Estero, where the 'cochineal awaits the gathering ;' the vine and other fruit-growing slopes of Don Juan and Mendoza, capable of yielding unlimited quantities of wines and the choicest dried fruits, their cities nestling amid the debris of earthquakes, mountain ranges abounding in gold and copper, meadows of lucerne, for cattle-grazing, irrigated from mountain streams ; Cordova, her city in a valley surrounded by mountain and hill ranges, approached through vast plains where the goats and sheep browse, and choice marbles abound ; the plains and woodlands of Santa Fé ; the more vast and woodless alluvial plains of Buenos Ayres, stretching through wilderness and Indian territory to the Cordillera towards the west and south-west, and Patagonia to the south ; the partially-wooded plains—belted with palm-groves—of Entre Ríos and Corrientes ; the undulating park-like campos of the Banda Oriental del Uruguay, with its network of wood-fringed streams and river :—a world within itself.

But various as the conditions and habits of the populations are, there is throughout one pervading influence specially characteristic of the Spanish settlements and reaching to every class and pursuit. This influence is the result of insecurity, of non-continuous industry, of lack of outlet for the all but spontaneous products of the interior, of little work and much idleness—a state of things which was inevitable so long as restless spirits were dominant and unscrupulous chieftains could sweep the country and gather its populations to fight, or make

show of fighting, for private ends and personal ambitions. No energy to work nor spirit of improvement could exist so long as the country was virtually in the hands of marauding chiefs, who depended on revolution for a temporary position and for opportunities to plunder.

The littoral states—now by far the most important, the first to be influenced by immigration and the foremost in material and political progress—rose rather from the circumstance that suitable points in them were constituted dépôts and ports of embarkation, than from any products that could at the time have been obtained by a gold-seeking or adventurous class.

They have risen to importance, however, mainly through their animal products, which now far exceed in aggregate value all those of the chosen localities of the early adventurers.

Yet the ruling principle or genius of Spanish colonial settlements in America has pervaded them; their wealth has been born of accident, and not of material industry. Cattle and horses and coarse-wooled sheep were introduced for cavalry and food purposes, and increased marvellously, spreading themselves, in a condition but little removed from the wild state, over the virgin pastures of the Pampas, and substantially leading up to the same political and politico-economic results described as of general application to Spanish colonies under a great variety of local physical conditions. The littoral states grew out of vast tracts of prairie, with a population singularly scattered, leagues intervening between habitations, chiefly huts of herdsmen almost as little domesticated as the cattle which they tended, or rather amongst which they dwelt. Landed proprietors possessed tracts of country—‘Estancias’—large as principalities, with inhabitants counted only by the score, without an edifice

on them other than mud-huts. On these lands no industry was practised, no capital was expended on improvement, not a tree was planted nor a vegetable grown, not a fence nor a stake set up other than for the 'corral' and 'palinque,' a ditch being in some cases dug round the huts and corral as a defence against the Indians.

When the cattle had increased beyond the direct requirements of the colonists themselves, they furnished an article of commerce in hides flayed from the animals. These were lassoed and slaughtered where they were bred and fed, or were driven off to be slaughtered near to a port to avoid the carriage. The beasts could carry their own hides at less cost than they could be otherwise conveyed. The remainder of the carcase rotted in the sun for want of an industry to utilise its products.

No part of the proceeds thus realised was returned to be employed in improvements, the same system of non-rooting and of perpetual drain prevailing here as in the mineral districts, but with this difference, that with one there was exhaustion, whereas with the other, by the very order of nature, the multiplication of animal life and the unserviceableness of its products until the animal had attained a certain age, in other words, the accumulative increase of the animals during the years intervening before they became serviceable, far more than replaced the number of animals actually slaughtered. Wealth was thus developed without an effort, but, as a consequence, it was attended by the formation of habits and influences incompatible with the more advanced social conditions which should follow increased resources. Cattle grazed in almost limitless space, chary of the approach of man; equine stock (the chosen food of the Indian), in immense numbers and of nominal value, fed in great troops, and

here and there flocks of leggy and shaggy sheep raced over the plain ; the population lived on horseback—men, women, and infants all but born on horseback. The men moved with the cattle, slept on their saddles of hide and skins, and found food anywhere and everywhere ; their lassoes and ‘bolas’ gave them nearly all they required—food, horses, and hides for saddles, girths, reins, stirrups, lassoes, &c., and few cared to exercise rigorously the right to prevent, had it been possible to do so, the odd animal or two appropriated as food by the gaucho, representing individually so trifling a value as they did but a comparatively few years ago.

Immense districts were under the rule of military or gaucho chiefs, who generally made a position for themselves, creating for themselves a local influence more or less politically dangerous, receiving their authority as ‘earnest’ from the party in power which calculated on their services, or as black mail from those who feared them, and probably awaiting but an opportunity of troubles to make a raid among the scattered population, or to make a stroke for power by overturning some other chief who had achieved such power by similar means, sweeping the cattle the while from the estancias of the opposing party, or of neutrals, under pretext of maintaining their troops or bands of irregular horsemen. These undisciplined bands of ‘lanceros,’ when disbanded, or, as was often the case, disbanding themselves and occasionally deposing the chief, did a little in the way of cattle-lifting on their own account.

The ‘candilllos,’ as the half-military chieftains are denominated, have ever been the principal actors in the infinity of revolutions of the River Plate States. Those who could collect round their standards a number of the ‘candillagos,’ or lesser chiefs, with their impressed bands

of lance-armed gauchos, motley squads, could at any time sweep the country, come down upon the cities, and overturn the existing government. The revolutionary movements were not always on the 'coronel's' or general's own account; in many instances the lesser chiefs were paid to operate in the interest of others, paid to create the disturbances, getting, besides the products of raids, the hides of cattle lavishly killed for the ostensible purpose of maintaining these 'scratchpacks' of gaucho soldiery. It is more than hinted that some of the revolutionary movements or 'risings' in the distant departments or in the provinces have been instituted for purely speculative purposes, for which there was ample field in the fluctuations of the non-redeemable paper currency of Buenos Ayres. The 'candillo,' having made his demonstration and received his hire, retreated when troops were sent in pursuit, and gained a safe retreat among the Indians, in distant provinces or neighbouring states, reappearing on the scene, like the stormy petrel, in troubled times.

Marked differences of local conditions, physical features, soils, climate, &c., impress distinct, intellectual, and physical characteristics on populations, and thus constitute races or types. The gaucho dwellers on the vast plains of the littoral states of La Plata represent or constitute a type; they possess a certain shrewdness, or 'vivisa,' an instinct of 'whereabouts,' and a remarkable quickness of vision. Retaining the impression of the smallest object, they will detect a horse or animal once seen almost anywhere, at any distance, and among any number, and remember when and where they saw it, as though it was photographed on the mind. The women have a characteristic 'indole' of manner, while both men and women exhibit an easy courtesy and grace of movement, the result of absence of labour and constant

horse exercise with a balance-seat, the form habitually bending itself to every movement of the horse. The men, patient of hunger, thirst, and exposure, care to eat only once a day, and that at eventide, when they will gorge an immense quantity of beef. Quick to serve their masters when up in the saddle, they move at a snail's pace when on foot, and are even tediously slow in saddling their horses. Of manual labour they are apparently, perhaps really, incapable, and certainly they have a marked disinclination to continuous effort. On life, whether their own or that of others, they seem to set little value; yet they are kind, watchful in sickness, and considerate. This seeming contradiction may be illustrated by a characteristic anecdote current in a district in Entre Ríos. A true specimen of the gaucho *par excellence*, dismounting at the hut of a 'conocedo' (acquaintance), found him writhing and groaning under the most violent rheumatic pain. The fellow looked commiseratingly on the suffering friend, and ejaculating 'Povrecito, povrecito!' (poor fellow, poor fellow!) gently took him by the beard with one hand, and coolly drawing his knife with the other, passed the sharp edge across his suffering friend's throat and put him out of his misery; then, commanding him to the 'Virgen,' took his departure, satisfied at having performed a humane act. So runs the tale. As a rule, they are careless of possessions other than good horses (which many would go far to get or steal) and gay horse-'gear' with silver decorations. They fight occasionally, severely cutting and sometimes killing each other at the 'pulperíeas' (public-houses) over their cups, and revenge an injury by a stab, especially when the women are concerned. The following example shows the indulgence accorded to acts of blood: A peon in my employ, only

a few months ago, was stabbed in the thigh and arm while sleeping on the ground by the side of some carts which he was accompanying. On receiving the stabs, he sprang to his feet, and engaging his assailant, wounded him. The attacking party then recognising the man whom he had stabbed, cried out that he had made a mistake and did not intend to hurt him. The two wounded men were brought to the authorities, and when sufficiently recovered from their wounds resumed their usual avocations. When my peon returned, I asked him how it had occurred, and what was done to the man who had stabbed him? He answered, 'Oh! poor fellow, he made a mistake. I could not bear him malice, and begged him off. He did not intend to stab me, but my brother Juan, with whom he had had a disagreement, and I happened to be sleeping rolled up in my brother's poncho. It was all a mistake, master—all a mistake.'

Materially contributing to the formation of the prevailing habits and characteristics in all classes are the uncertainties under which men live, the little faith they have in each other, the little hold they have on property (beyond the bare land of the estancieros), the movable nature of the stock, and the consequent slight connection of their lives with the soils, habitations, or homes—circumstances all tending to endow the gaucho of the plains with more of an Indian instinct than the character which contact with civilisation, persevering industrial labour, and more gregarious habits engender. The estancieros, many of whom were but little removed in habit from the gaucho, expended little or nothing in the acquisition of revenue; their properties rose in value, and their revenues were increased simply by the natural multiplication of their cattle, the influx of immigrant population, the introduction of the sheep industry,

the more profitable utilisation of cattle products under its influence, and the demand for land to which it gave rise.

There were no homesteads to destroy, and no marauder cared to injure the sedge and rush thatched mud-huts. It mattered but little therefore to the estanciero if a revolution came, or if one or other 'candillo' swept the country and levied contributions of a few hundred or thousand heads of cattle. Propagation continued irrespective of revolution; but undoubtedly the almost certain recurrence of revolutions prevented his entertaining the idea of improving either his estancia or his stock, much less of venturing any expenditure to effect it. Many of the enlightened and educated estancieros—the chief citizens of the nation—rarely ever saw their estates. Their revenues came to them by the sale of cattle, and there was but one way in which they thought of investing their accumulation (a town house or two excepted), and that was in the acquisition of land, more and more square leagues of natural pasture-land—land which remained, whatever happened, which could not be directly affected by any event and was always the same area, which the surplus increase of animals served to stock.

Comparatively few of the estancieros were ever in contact with men of a higher intellectual status than themselves, while those who resided in the capital cities were, as the rule, little in communication with the outer world, and had but vague notions of intellectual or industrial development and progress. Even the more intelligent and studious amongst them and the members of the learned professions were at a disadvantage, owing to want of contact with, and practical knowledge of, the working of states of society more advanced in science as in industrial and political practice, and had conse-

quently but an imperfect conception of the application of principles. Other elements and influences were required to create a new and more vigorous life, and to infuse new trains of thought ; and it needed long struggles and great political and industrial changes to modify in degree even those provinces and populations which were the most accessible. For the more distant and heterogeneous groups a thorough change is still needed in means for transit as well as a vigorous dominant power, at once liberal and constitutional, centred in the most advanced and, commercially and strategically, important city of the nation, to restrain revolutionary tendencies and impose stability, pending the extension of civilising and industrial influences.

That there have been important political and industrial changes the following pages will show ; and it cannot be doubted that the events of the past twenty-five years have broken the crust in the littoral states, and that these have fairly entered on a course pregnant with good and leading to a great future.



B O O K   I I.

---

HISTORICAL SKETCH AND PERSONAL  
EXPERIENCES.



## P A R T I.

---

### HISTORICAL SKETCH AND PERSONAL EXPERIENCES.

THE revolutions of the River Plate States are countless, and from the day when they asserted their independence from Spanish rule intestinal warfare has been all but incessant. Nevertheless there have not been wanting true patriots, and there have been periods of light. Enthusiastic spirits have risen at intervals to the surface, advocating and striving after liberty and progress; and these, though they have been swept away after a brief struggle, have nevertheless left an impression for good on the minds of their countrymen. Such, in the Argentine States, was the rule of Revadavia (1826), a man of refined and elevated thought, of enlightened and advanced policy, which, when certain errors are eliminated, remains still a starting-point for the history of the country. Revadavia, however, came too soon and the elements which were available for the working out of his plan were disproportioned to the ruder and more turbulent influences of the time. Moreover, with the intellectual and elegant tone of Revadavia there was unfortunately mingled an almost atheistical materialism, derived from the French school of the day, which was fatally prejudicial, and, by determining the opposition of the Church, contributed to his downfall and the failure of his party. His political aim was to unite the provinces constituting the Argentine Republic under one rule, a policy of centralisation from which his party took the name of Unitarios.

He was succeeded by Vicente Lopez who, as advocating the federation of the Provinces, represented a party denominated 'Federales' in contradistinction to 'Unitarios,' denominations which have been used as party terms in almost every struggle and revolution since that period, even when the terms were least applicable to the objects or policy of those who assumed them.

After Vicente Lopez Dorrego, also on the Federal interest, took the governmental chair [1827]. Against him and his principles there was formed a powerful organisation, and Lavalle, the chosen chief of the Unitarios, mustering a strong force, effected a revolution, gave battle to and defeated Dorrego [1828], and, having taken him prisoner, was guilty of the criminal error of shooting him. From this act probably sprang the disasters of the Unitario party. The friends and party of Dorrego allied themselves with the gaucho chief Juan Manuel Rosas, a remorseless iron-handed man, who has indelibly written his name in blood on the pages of his country's history. General Rosas, a master of all the gaucho feats of horsemanship, and giving the law of fashion to gauchos of high and low degree in everything appertaining to horse and gear even to the coiling of the lasso, acquired his influence by these accomplishments, by his strong will, and by practically setting all authority at defiance by sheltering every lawless gaucho and protecting every malcontent 'candellejo.' Gaining the alliance of the Indian Caciques, and thus holding sway in the Campo, he gathered a strong force and made head against Lavalle. Having finally, in alliance with E. Lopez, governor of Santa Fé, defeated him at Puente Marquez (1829), he compelled him to fly the country, and established himself as Dictator, craftily obtaining the grant of 'extraordinary powers,' which he exercised relentlessly to the last.

Lavalle again appeared on the scene, and having organised an army, raised partly in the Island of Martin Garcia [1839], on the oriental coast, but chiefly in Entre Ríos, crossed the Paraná and entered the province of Buenos Ayres [1840] with the object of recovering ascendancy for his party. Rosas despatched his forces, under General Angel Pacheco, to oppose Lavalle, who defeated him. Lavalle, probably conceiving doubts of the fidelity of some of the chiefs, and desiring to strengthen his army by the addition of troops organised in the provinces and thence marching down towards him, hesitated and halted when he should have advanced and struck a decisive blow. Retiring to Santa Fé, he was defeated at Quebracho, and his army became demoralised. In order, therefore, to effect new combinations, he retreated to Córdoba, followed by Generals Oribe and Pacheco.

These combinations were frustrated by the treachery of one of his chiefs, Videla. The result was the defeat and complete demoralisation of the main body of his forces which fled northwards, Oribe, Videla, and others following in hot pursuit. Lavalle, with a few followers, gained the city of Jujuy, where some troops of Oribe overtook and surprised the party in a house in the city. General Lavalle, hearing the movement of men outside the house, came to the door to ascertain the cause. Just at that moment one of the troopers fired his carbine through the lock with the object of forcing it and the shot struck the general on the forehead as he stooped to listen, and he fell dead [1841]. The remainder of his party escaped.

The task of crushing out the Unitario party in the upper provinces was entrusted to the cold and cruel Oribe and the notorious Colonel Massa, for whom no atrocity was too great. They did their work remorse-

lessly. With wholesale slaughter, in cold blood, and with the most repulsive cruelties and mutilations, they strove to break and exterminate the Unitario party. Rosas then directed his efforts to destroy all elements of opposition from whatsoever quarter, and set his heel upon the neck of his own party. Men of influence and intelligence were driven to fly the country, or were crushed into subserviency. His device was '*Death to the savage Unitarios* ;' every document was headed with it, and every native man had to wear it printed on a blood coloured ribbon in the button-hole of his coat, while every female carried the blood red ribbon in her hair. He established a reign of terror, and an extraordinary system of espionage. Men fell by the knives of the throat-cutting band for the smallest indiscretion of speech, nay almost of thought. Intelligence and refinement dropped into the shade, and the gaucho was enthroned. The wealthy hid their treasures or transferred their properties, and lived in retirement, carefully avoiding every sign which might show that they had a preference for civilised life.

I shall never forget the gloom and terror that weighed on the city of Buenos Ayres after the events of April and May 1842. For days and weeks an authorised band of assassins, the 'Mayorca Club,' rioted in blood by day and by night in the streets, the houses, the theatres. Men were called out of their homes, or summoned to official balls and 'funciones,' to be waylaid and murdered in the streets. Houses were sacked, and women of the highest families were beaten. Indeed, there were few families of respectability which had not some of their members assassinated on the bare suspicion that they were unfriendly to Rosas. Many, seeking shelter in the houses of British and other foreign residents, were stowed away for days, weeks, or

even months, in retired rooms, or hidden among packages of merchandise in the stores, their food being taken to them by members of the family (no servant could be trusted) until they could be smuggled off to sea in disguise. Some of these, when attempting to reach the boats, were detected and their throats cut. It is estimated that in the month of April 1842 several hundreds were assassinated. Thus did Juan Manuel Rosas establish and maintain his terrible Dictatorship. While it lasted, the native industries were driven to their lowest point; real property sank to the lowest market value, and many valuable estates changed hands for mere nominal sums, being sold, under compulsion or from fear, to partisans of Rosas, and in some notable instances to Rosas himself. Many men of influence, standing, and talent who were driven from the country found refuge in Monte Video, where the dominant party was hostile to the Dictator of Buenos Ayres.

Meanwhile the republic had not escaped quarrels with foreign nations and disputes relating to territorial limits, which finally resulted in hostilities.

In the war with Brazil (1826-8) on the territorial question with the Banda Oriental, the nationalities of Spanish and Portuguese origin contended on the territory of the Banda and on the waters of the La Plata. Peace was signed 1828 by Dorrego, and the result was the definitive arrangement of the boundaries between Brazil and the Banda Oriental.

The grievances alleged by France against the Argentine States gave rise to the blockade of Buenos Ayres by the French naval forces, declared in 1838.

While blockading Buenos Ayres, the French encouraged and aided General Lavalle in preparatory movements for his operations against General Rosas.

The foregoing cursory mention of some of the chief events in the earlier history of this country will suffice as an introduction to later events of more direct interest, which have passed under my personal observation and of which I can treat with the accuracy needed for the special purpose which I have in view—viz., to trace intelligibly the influences which have affected these countries as an industrial field.

It has always been an object with the ruling powers in Buenos Ayres to have a friendly party governing in Monte Video; hence the successive intrigues and interventions of Buenos Ayres in the affairs of the Banda Oriental del Uruguay. As I have previously said, during the reign of terror in Buenos Ayres great numbers fled to Monte Video, where they were sheltered by a friendly party. Hence after the defeat of Lavalle and the extermination of the Unitarios in the Argentine States, Rosas prepared to operate against the Uruguay republic, supporting, with his army, a pretender to the reins of power in that state.

Under the command of General Manuel Oribe, who claimed to be legal president of the Banda Oriental, the forces of Rosas crossed into Entre Ríos, and thence, in combination with General Justi Urquiza, governor of Entre Ríos, passed the River Uruguay and entered the Oriental republic. Defeating General Rivera, then actual president, Oribe marched on to the city of Monte Video, before which he halted, without venturing to attack it, and commenced (1843) the memorable siege which lasted so many years. Rivera did not enter the city after his defeat, but took to the 'campo' and waged a montanero warfare, harassing the besiegers, interrupting their supplies, and running through the lines to supply the city with cattle. Subsequently, he gave battle to a body of

the enemy, at Indeo Muerto, and narrowly escaped with his life. After this battle, the forces of Oribe having taken about 700 or 800 prisoners, this cruel chief had them all killed in cold blood. Rosas also sent his squadron under Admiral Brown, to blockade Monte Video, but this was not permitted by the foreign commanders on the station, the British commodore compelling the commander of the Buenos Ayres squadron to bring his vessels under his guns. Brown finally returned with his vessels to Buenos Ayres.

Garibaldi, of world-wide chivalric renown, took service in the cause of 'Liberty' with the government of Monte Video, organised a legion of his countrymen and others, and also took command of the few ships of war belonging to the republic, vice Coe, an American who had held the rank of admiral under the Oriental flag. With a couple of these 'impromptu' war vessels, Garibaldi undertook a most difficult service, viz.—to run the gauntlet of the Buenos Ayres squadron lying in Buenos Ayres roads, pass under the guns of the fortress on the Island of Martin Garcia commanding the passage to the Parana and Uruguay rivers, and run up the Parana for a point in the province of Corrientes, conveying arms and ammunition for a body of men sufficient to effect a diversion. Passing the Buenos Ayres squadron, which lay at anchor, he dashed through the passage at Martin Garcia, gained the Parana and ascended it, followed by Admiral Brown with the Buenos Ayres squadron. Pressed by the enemy, Garibaldi ran his vessels in shore, to discharge their contents. When Brown, a gallant old tar, came up with him, a desperate fight ensued, Garibaldi landing the arms, while it went on. His object was gained although his vessels were completely riddled. Abandoning his ships, he marched inland with his men.

The numerous feats of Garibaldian guerilla warfare are matters of history, and few, if any, are more brilliant than his defence of Paisandu on the Uruguay, Banda Oriental. With a force of 300 men he sallied out and engaged the enemy, numbering about 3,000, beat them off, and retired again to the town in good order.

It was in the earlier years of the siege of Monte Video that the intervention of Great Britain and France took place in the Rio de la Plata.

In 1845 Sir William Gore Ouseley, H. B. M. minister plenipotentiary in concurrence with the French legation declared the blockade of Buenos Ayres. He had failed to obtain from Rosas redress for violation of treaty, satisfaction of claims, and the retirement of his army which threatened the independence of the Banda Oriental, which had been guaranteed by Great Britain, France, and Brazil.

Subsequently a few companies of two regiments of British infantry, the 45th, and 73rd, calling at Rio de Janeiro 'en route' for the Cape of Good Hope, were brought down, and landed in Monte Video, with some English and French marines and other troops. The British and French determined to force the Parana, the navigation of which Rosas refused to foreign flags, to make a treaty with Paraguay and permanently open that magnificent river to the commerce of the world ; and preparations were made accordingly.

Rosas determining to resist to the death, fortified a very strong position on the river, at the Vuelta de Obligado. Batteries of guns of heavy calibre crowned the bank, or were sunk in it, with guns on the water level, so as to hull an enemy's ships point blank. Vessels sunk nearly to the water's edge, laden with stone, and moored in the river, with a massive chain clamped

to their decks, obstructed the passage, arresting the advance of the attacking squadrons and forcing them to an engagement right under the batteries. He had also a strong force of cavalry and infantry on the right flank and rear of the batteries, and flying artillery on the bank to harass the ascending squadrons.

The French division consisted of several sailing vessels and steamers, under the command of Captain Tréhourt. The British squadron likewise comprised steamers and sailing vessels, of suitable draught, under command of Captain Charles Hotham of the *Gorgon* (commander-in-chief of the expedition), ably seconded by Captain Hope (*Firebrand*), subsequently distinguished in China. On November 20, 1845, the combined squadron attacked the batteries, and for several hours engaged them, inflicting and receiving much damage. Two of the vessels, one English and one French, received each over one hundred shots, some of which struck between wind and water. In this position of affairs, the batteries returning more than shot for shot, it was determined to make an attempt to cut the chain, and simultaneously to land marines and blue jackets to flank the enemy's troops and batteries on their right. Captain Hope undertook the task of opening the passage. With a volunteer boat's crew of gallant fellows, he boldly and with extraordinary coolness pulled under the batteries for the vessels bearing the chain in midstream, and boarding them amid a concentrated storm of shot, cut the chain on the deck of the moored vessels, thus opening a passage for the steamers, which immediately steamed up and poured a raking flank fire right into the batteries from above while the marines and bluejackets stormed from below. The batteries were taken after some severe fighting, with very heavy loss to the enemy and with sensible loss to the allies.

After this victory Captain Hotham proceeded up the river, without further serious opposition, to negotiate a treaty with Paraguay. I do not propose to follow in detail these negotiations or the minor events arising from the stay of the squadron in the river ; suffice it that Captain Hotham succeeded in opening the navigation of the Parana and Paraguay rivers to the commerce of the world, and was knighted for his services. Neither shall I detail the negotiations which he and Sir W. G. Ouseley carried on with the chiefs of Corrientes, Paraguay, and Entre Rios, with the object of bringing about a coalition against Rosas. General Urquiza, governor of Entre Rios, the most influential and powerful chief of these republics, after Rosas, was not averse to negotiations on this basis, but he was too cautious to risk his position without efficient aid of land forces.\*

Meanwhile no effective diversion being practicable by land, the siege of Monte Video continued, and many gallant feats were performed by Garibaldi, Tajes, and other chiefs. Some of the most desperate were performed by 'Cockney Sam's' little volunteer band. 'Sam'—history, or rather tradition, does not preserve his family name—had been a London 'bargeman' or 'coal heaver,' a lithe, fair-haired, mild, and civil fellow, who occupied himself in the harbour of Monte Video as a lighterman and trader in bones for dunnage purposes. When the war

\* The writer having occasion to converse with Sir W. G. Ouseley on this subject, and also about the formation of a separate republic of Paraguay, Corrientes, and Entre Rios, and an alliance with the Banda Oriental, as a possible event within the range of the ambitions of certain chiefs, ventured the opinion that General Urquiza would determine his course by the aid that could be guaranteed to him, but that nothing less than a powerful land force would induce him to pronounce himself hostile to the Dictator; this force not being available, he held to Rosas, and kept Paraguay and Corrientes in check.

interfered with his pacific occupations, he collected all the 'daredevils' who were willing to follow him ; and follow him they did, by day or by night, where few would care to go. Cool as a cucumber, he performed extraordinary feats under the most desperate circumstances, odds being no odds for him and his band, which was many a night reduced to a fraction of the number that sallied forth. 'Sam' would come round to his old patrons and others for small subscriptions for the maintenance of his band, mildly soliciting as for an order for bones. Poor Sam ! he returned at length to his peaceful occupation and was subsequently drowned, his little craft capsizing on a voyage to Patagonia.

The blockade of the port of Buenos Ayres by the British and French naval forces failed to bring about the results sought, as had been expected, in the absence of any land forces capable of raising the siege of Monte Video. A considerable blockade-running trade was carried on between Monte Video and Buenos Ayres. Small craft and lighters, availing themselves of favourable winds, put off from Buenos Ayres, skimmed the shallows and banks under the shadow of the land at night, and were out of reach before daylight with their cargoes of hides, tallow, and wool. In like manner they cleared from Monte Video with goods, and approaching Buenos Ayres, just sighted the tall masts of the blockading squadron before nightfall ; then crowding sail as the night closed in, they ran over the banks, and were safe in the creeks before daylight.

There was no real desire to check this trade, as it brought revenue to the Monte Videan government, and also lessened the injury which the blockade caused the foreign merchants. In the latter period of the blockade this trade was connived at.

The British troops, the bringing down of which from Rio de Janeiro had been disapproved, were ordered to their destination, and left Monte Video accordingly. A monotonous siege continued, enlivened at long intervals by an outpost affair or a feigned night attack. The booming of cannon would call us from our beds to the flat roofs of the houses, to see a double line of musketry fire marking the semicircle of the outer lines, with cannon at intervals. The casualties were few or none, and it was a rather pleasant 'break' of a balmy night to congregate on the house-tops to witness an exhibition of musketry fireworks and the occasional fire belching of the cannon at the outport batteries.

Tiring of the fruitless blockade, the British Government, August 1846, sent Mr. Hood (formerly consul-general in Monte Video), as special envoy to try and arrange terms with General Rosas for raising the blockade. In this he failed. Subsequently, Lord Howden, as the British envoy extraordinary, and Count Walewski, as the French, arrived (May 1847), with fresh instructions to negotiate the raising of the blockade on any terms, or, failing to make terms, to raise it 'di hecho.' They failed to negotiate anything: Rosas would make no terms. In this awkward position, they simply withdrew the blockading squadrons, 1847, all other matters remaining 'in statu quo'—and dignity thus gave way before expediency.

There has ever existed a rivalry between the governments of Buenos Ayres and Brazil for influence in the affairs of the Banda Oriental del Uruguay, and during the Dictatorship in Buenos Ayres it assumed a formidable character.

The occupation of the Banda Oriental by Rosas menaced Brazil through her province of Rio Grande, where his intrigues were notorious; and these, with his

proclaimed hostility to Brazil, led inevitably to a breach.

Brazil had wished to join the Anglo-French intervention, but her participation was not admitted, as the court of Brazil did not at the time stand well with the two European powers on account of slave-trade questions ; had it been otherwise, the intervention would have had a very different result. The European powers retiring, and the menacing attitude of Rosas becoming more bold, Brazil, no longer able to remain passive with safety, prepared herself for the struggle, and came to terms with General Urquiza, governor of Entre Ríos, agreeing to his 'sine quâ non,' the provision of land forces, which the British and French were not disposed to do. An army marched over the frontier of Rio Grande, while a powerful squadron was sent into the La Plata under command of Admiral Grenfell. Having raised the siege of Monte Video, the army dispersed the forces under Oribe, and finally crossed the Parana under protection of the Brazilian squadron. The allied army of Brazil, under command of the Marquez de Caxias, and of Entre Ríos under Urquiza, with contingents of Argentine and Oriental forces, entered the territory of Buenos Ayres, driving before it the forces of Rosas under General Mancilla (brother-in-law of Rosas), and advanced on the city of Buenos Ayres, about three to four leagues from which, at a place called Caseros, Rosas had collected all his forces, to the number of 25,000 men of the three arms, and there waited the approach of the allied army, staking everything on the issue.

I well remember the day (February 3, 1852). The booming of the cannon was distinctly heard in the city, and ever and anon the rattle of musketry faintly struck upon the acutely attentive ear. Men nervous and expectant hung about the streets, chiefly foreigners, for nearly all

the natives capable of active service were with the army, and the elder men of all grades, and the less efficient of the national guard, were in the 'cuarteles' of the city, awaiting with trepidation for news which would announce to them a lifelong doom or a liberation. Was it that the wind had shifted, or that it was a little stronger? The sounds of artillery and musketry were more distinct, clearer, and nearer. I met an aide-de-camp of General Rosas, a man with whom I had no friendship nor acquaintance, yet he reined his horse to address me, reporting 'All well, a victory for Rosas.' Painfully anxious that it should not be so (my anxiety was shared by almost all), I curtly remarked that 'it was strange in such case that the action should be coming nearer to the city.' To this he made an indistinct reply and rode off hurriedly, to be seen no more in Buenos Ayres. He was a well-known petty tyrant and captain of the port. Nearer and more distinct came the sounds, and now horsemen, by ones and twos, in the uniform of Rosas, sped through the town on jaded and reeking steeds. The rout was total. Twenty-five thousand men, the last stay of Rosas, broke up, threw away their arms and accoutrements, and fled. Their hearts were wanting to the cause. Rosas disappeared from the field early in the day, and, disguised as a gaucho, reached in the dusk of the evening the house of Captain the Honourable Robert Gore, R.N., H.B.M. chargé d'affaires, where also his daughter, Doña Manueleta Rosas, an estimable lady—the one bright spot in the whole surroundings of the Dictator—found refuge. Thence they were smuggled off to H.B.M. steamer Locust, Doña Manueleta, disguised as one of the oarsmen, reaching the boat, barefooted and bleeding.

The victors encamped at Palermo, about a league outside the city. They were hailed with a joy too real,

and too deep, to be at first demonstrative. Men seemed to awake from a dream of terror, holding their breath, in doubt and fear, yet thanking God for the reality. It was the end of the reign of terror, and the dawning of a new but still struggle-fraught era.

An army of many thousand men had been scattered in all directions, and with them were mingled some of the pursuers. The city guard had dissolved, and gone to their homes rejoicing. Many of the dispersed soldiery, and some of those who had mingled with them in the pursuit, congregated about the suburbs of Buenos Ayres. The following day, forming themselves into bands, they entered the city for plunder, and were followed and joined by many of the bad characters, men and women, of the suburbs. Penetrating by the main streets to the very centre of the city, they broke open stores and shops, in some instances blowing in the locks with their carbines, and plundered them before the people at large could comprehend the situation. As soon as it was realised, foreigners, and then the natives, flew to their arms—fowling-pieces, pistols, rifles—and then rushed to the armouries for muskets ; the robbers were shot down in the streets, or brought in, booty-laden, to the Carcel, the central prison, and shot by a file of soldiers. In every district men turned out, each one on his own account at first, and then 'fell in' to patrols, of half a dozen or a dozen, forming district guards, which took their rounds and rest alternately. In the course of the day the whole population became worked up to a sense of resistance and self-defence ; even females and children fell under its influence. Of this the following anecdote may serve as an illustration. The patrol of the district in which I resided, composed of several young English and two or three native gentlemen of the neighbourhood,

having gone its rounds and found 'all clear,' retired to my house to take a little refreshment and rest. We laid down our arms about the drawing-room, which opened on to the 'patio,' or court-yard of the house, and loitered about the vestibule and doorway smoking our cigars. Suddenly we heard the tramp of horsemen, and a party of sackers galloped to the corner of the square: we turned to get our arms. The ladies of the house and the children, as keenly on the 'qui vive' as ourselves, noting our sudden movement, ran out to meet us, bearing our arms; my two little daughters, one between four and five years old, handed me my favourite 'Mortimer saw-handles,' crying, 'Shoot 'em dead, papa--shoot 'em dead!' (the young barbarians!) As we marched off at double quick to meet the sacking squad, ladies and children stood at the door, watching us come hand to hand with the fellows not a hundred yards from where they stood. Fortunately a little prudence saved bloodshed at their very feet. With our pieces to their breasts, we obliged them to lower their carbines and 'gave them law' to retire, which they did with all speed.

The next day, all being quiet and military guards stationed in the city, a party of us had out drags and dog-carts, and proceeded to the battle-field. It was one of those days of sirocco-like heat, when the hot, almost impalpable, dust is wasted in clouds and suspended in the atmosphere, from time to time hiding everything from view. As we approached the outer lines of the victors' encampment, through which we were about to pass, we were enveloped in one of these clouds, and were suddenly brought to a check by a discharge of musketry close in our ears. As the dust partially cleared away, we saw, within a few paces of our horses' heads, a limp corpse being run up by a rope round the neck to the branch of

an 'ombu' tree. The man was a deserter from a regiment a portion of which had mutinied in the early part of the campaign and murdered the colonel; being caught, he was shot on the spot, and thus hung as a scarecrow and a warning. We did not particularly relish this little 'episode of the road'; nevertheless, on we pushed for the battle-field, through corn-fields laid by the tramp of fleeing infantry and cavalry, dotted by corpses parching in the sun, tumbrils broken, and accoutrements strewn everywhere. In some cases the line where a regiment had stood was marked by the rows of cartouche-boxes and belts stripped off and cast on the ground as the men took to their heels. We pushed on for the centre of the position, a flat-roofed house of considerable size encircled by a ditch, where a regiment of negroes had made a stand. The earth was ripped up and the building battered by shot, the cannon dismounted. Men were collecting the corpses or piling them on hides and drawing them with lassoes attached to the saddle-girths to fires where they were burned. We needed to have recourse to our pocket flasks: the air was polluted with the smell of flesh and blood.

A Provisional Government was named, and the city became a scene of triumph and rejoicing. General Urquiza and Caxias made their triumphal entry with the whole of the allied army, marching into and around the grand Plaza and back to the encampment; fêtes were given and all was gay and hopeful—the incubus of an oppression of the worst kind had been got rid of. The Brazilian and Oriental troops retired.

General Urquiza had now a brilliant opportunity, had he but known how to use it. The instincts of the military chieftain and irresponsible chief of a province, however, prevailed, and he virtually assumed a haughty dictatorship,

which was no wise consonant with the hopes of freedom and progress awakened by the fall of Rosas. Urquiza is a man of unquestionable ability, but in Buenos Ayres he found himself in a much larger sphere than any to which he had been accustomed, and in situations which he did not expect or did not comprehend. Combined with his instinctive qualities as a chieftain, he had a decided commercial tendency, which has unquestionably influenced his subsequent general policy: he became chief 'estanciero' and chief merchant of his province. He is of middle stature and rather full form, with a somewhat stolid look, an eye dark and firm, and an expression of relentlessness noticeable in men who rule by their own irresponsible will and on whose words hang life and death. Shortly after the victory of Casiros, I was present at one of his receptions at Palermo, when the chief of his staff, General Homos, entered and said a few words to him which were not audible to the assembly. Urquiza, tapping his boot with a light riding-whip (his restless hands always needing occupation) made answer without raising his eyes and scarce moving his lips, 'Fusilelo' (shoot him); on which Homos retired, and Urquiza continued the conversation which had been interrupted.

The order was doubtless executed, as many like it were wont to be in his own province of Entre Rios, where he punished the smallest offences with death; this being, it is said, the only way in which the lawless gauchos of that province of plain and wood could be reduced to respect life and property.

The signs—real or supposed—that Urquiza intended to substitute a new dictatorship for that which had just been swept away, determined the people of Buenos Ayres against him, while yet the triumphal festivities were in progress; and a plan for his overthrow was

matured, in which the National Guard of Buenos Ayres, some regiments of the line (Buenos Ayrean), and a Correntino cavalry regiment were compromised.

So excited and fevered were men's minds at this period, so intoxicating was the first draught of freedom, and so great were the fears that it might be again taken away from them that, apart from and unknown to the promoters of the organised movement, several young men, scarce out of their teens, conspired, and went so far as to contemplate the assassination of Urquiza, on occasion of a great ball given in his honour by one of the clubs. Fortunately, it came to the ears of those of more discretion, and these young men, some of them belonging to the most prominent families, were saved from the crime, and the city from the disgrace, of such an act. Only a few months ago I met on the road an officer attached to the Campo National Guard, whom I knew in his official capacity, and as our road lay the same way, we took our refreshment together at the wayside inn, and then jogged on, conversing. Referring to those times, he told me that he had been one of the band and one who was to have 'struck,' and said how grateful he was that he had been saved from a deed which would have caused him life-long wretchedness.

Whether from the knowledge that his life was in jeopardy in Buenos Ayres, or because, as he said, his presence was needed in Entre Ríos, Urquiza embarked, followed by a large concourse of people, many of whom had heard the whisper of assassination and could not rid themselves of the fear that it would be attempted before he left the shore. Participation in the crime, it is stated, was proposed to one of Urquiza's staff, General —, who heard it with his hair standing on end. He was a daring man and his family had suffered much, two of his brothers

falling for a revolutionary attempt against Urquiza in Entre Ríos, but in no such work as this would he take part. I have it that, the better to prevent it, the general led the young men to believe that he would do the deed, and certainly he never left Urquiza's side until he was safe in the boat; but so soon as Urquiza was personally safe and had left the shores of Buenos Ayres, he considered his allegiance at an end, and, in command of his regiment of Correntino cavalry, declared for Buenos Ayres and against Urquiza.

The revolution was proclaimed September, 1852, and troops marched out to attack General Galván, in command of the Entre Ríos troops which Urquiza had left, and which beat a hasty retreat northward and gained the province of Entre Ríos.

The paramount struggle was now fairly afoot between military despotism and constitutional government, between the military commanders and gaucho chiefs of the Campo against the intelligence of the cities and the advocates of popular and constitutional rule.

Dr. Valentín Alsina was elected to the Governmental chair, an eloquent, honest, high-minded man and patriot—a theorist adopting many of the principles of Revadavia, and a student of the constitutional law of the United States—a sound lawyer and able advocate—a proclaimed enemy of gaucho domination, and at that time personally hostile to General Urquiza. A refugee from his own country for many years, returning only on the fall of Rosas, he unfortunately had not a practical knowledge of statesmanship, nor of the party elements of the country to the highest office of which he was called at a critical moment.

He was scarcely seated in the chair before he took steps to assail General Urquiza in his own province of Entre

Rios, directing a handful of men under General Homos to land, in the expectation of raising a revolution. The movement utterly failed. Immediately after this a gaucho revolution pronounced itself in the province of Buenos Ayres, December 1852, under Colonel Lagos. Lagos collected men, suborned small bodies of troops, was ultimately joined by the military commandants of the Campo, and all the notorious characters of the Rosas domination, and marching on the city before the government was aware of the movement, actually entered it with his staff and a handful of men, there being no force whatever to oppose him. In this predicament some of the friends of the government sought a parley in the very streets, and induced Lagos, who probably did not know how thoroughly unprepared the city was, to hold his troops in the suburbs on condition of the resignation of Dr. Alsona, who, finding himself not equal to the occasion, complied.

The few troops on furlough in the town and some National Guards were hastily gathered and armed. General Angel Pacheco, who had been one of Rosas's generals but in the latter period of the Dictator's rule had held aloof as much as possible, without seriously imperilling his large estates, harangued the men collected, and in virtue of his prestige, which was considerable, put himself at their head.

The venerable General Pintos, snow-white haired and of noble presence—one of the few remaining generals of the war and parties to the declaration of independence, emerged from his long retirement and assumed the office of Provisional Governor, at the earnest solicitation of the most influential citizens.

Time had been gained and the rebel chief no longer held the city at his mercy. An armistice was agreed to

and negotiations opened. Both parties meanwhile gathered strength ; barricades were thrown up in the principal streets of the city, while Lagos disposed his troops on the main lines of communication, in effect investing it, and daily receiving contingents from the Campo headed by the Candillos of the dictatorship.

Thrice commissioners went out to negotiate with Lagos. The last of these commissions—the Bishop of Buenos Ayres being one of its members—brought back an ‘ultimatum.’ The Provisional Governor, General Pintos, on receipt of this, called a council of forty of the principal citizens and generals ; several foreigners, for the first time on record, being included among the former. To this council I was invited. It was an imposing assembly, the gravity of the circumstances giving it a marked impressiveness. The demands of Lagos were submitted by Dr. L. Torres, one of the commissioners, and a short earnest address was spoken by the venerable Pintos, asking counsel under the emergency. The question was submitted for the opinion of each separately, and with only two or three dissident voices—one of which was General Guido’s, a general of the War of Independence and for many years Rosas’s minister to the court of Brazil—the council pronounced the demands of Lagos, which involved the almost unconditional surrender of the city, wholly inadmissible. From the accident of my position in the room I was the first foreigner called on to speak, and had the honour of being called by the governor before leaving the council chamber to receive his personal thanks for the tone and tenour of my opinion, and to receive the public expression of the high esteem in which he held foreigners and the value he set upon their opinions. This incident is related not for itself, but for its significance as opening the way to that fusion and concord which is so

important to the progress and stability of a country in which the foreign element is so large and so rapidly increasing a portion of its population, and which has already worked out incalculable good.

The business of the siege and defence was now undertaken in earnest. The whole of the native young men of Buenos Ayres were formed into corps, drilled and posted at the different earthworks and batteries which were thrown up on the vantage-ground at the extremities of the city, and at the barricades in the streets. In taking daily exercise I usually directed my course to some of the batteries or barricades to converse with and give a word of encouragement to my young friends, who had changed their homes of luxury and their fashionable dress for the stretcher or guard-house floor and the uniform of officer or private of the National Guard. More than once in these visits I had the 'luck' to come under fire and 'wind' cannon-balls too close to be pleasant, the enemy running down guns or opening from masked batteries. At the principal points in the line of defence there were bodies of regulars, one an Italian legion raised and commanded by Colonel Count Oliveri, a gallant young Roman, who, an exile from his country, came here with the commendations of Garibaldi, rendered good service and headed many dashing brushes, supported by or supporting the valiant Homos with his handful of Correntino lancers. As the siege continued, the city gained strength and completeness in its defences. General Urquiza having been elected provisional president of the thirteen provinces, and seeking to compel the adhesion of Buenos Ayres, came to the support of Colonel Lagos. Crossing from Entre Rios with a considerable force and artillery, he took chief command of the besiegers. He also manned and armed a squadron or fleet—part of

which had been Rosas's—and ordered it, under command of Admiral Coe, formerly of the Monte Videan service, to proceed to blockade Buenos Ayres. The government of Buenos Ayres also armed an impromptu naval squadron, consisting of a small steamer (formerly a passenger boat), a brig, and some schooners, and sent it out to meet the enemy off Martin Garcia. And now occurred one of those things which, under different forms and circumstances, are not unfrequent in the civil wars of South American states.

The most heavily armed vessel of the Buenos Ayrean squadron was a low, rakish, slaver-like eighteen-gun brig, commanded by an Englishman of the name of Turner, who had been a river pilot; the brig, the steamer, and a three-masted schooner, were in the van, the small schooners in attendance. Coe came down with his vessels, a couple of steamers leading the way with evident confidence. One of these went in between the brig and the steamer of Buenos Ayres and opened fire. The affair was over. Turner never showed himself on deck of his brig, and at the very first discharge all her guns turned over, the lashings having been saturated with sulphuric or muriatic acid. The steamer struck her colours, as did the brig; the three-masted schooner fired a few shots, got aground, and also struck; the few men on board who were true to their colours took to the boat and made for the three small schooners manned by Italians, which gained the shallow of the bank and kept up a smart running fire as they retreated for Buenos Ayres, where they arrived more or less damaged in hull and rigging.

The vessels which had struck subsequently came down to Buenos Ayres as part of the enemy's squadron, with the same commanders and the majority of the crew

who, a few days before, had left it as its presumed defenders.

One of these little neatly-handled schooners subsequently engaged a steamer of Coe's squadron which attempted to enter the inner roads of the harbour, probably with the object of cutting out some vessel. It was a pretty sight: the schooner, commanded by Captain Muratori, now admiral of the Argentine fleet, loosed sail, slipped anchor, and made the shallows of the sand bank as the steamer entered the channel.

The wind, though light, sufficed for the clever handling of the little craft, which fired first her starboard and came round, her port-gun making very good practice on her deeper-draught antagonist, which was unable to manœuvre in the channel. With my glass I saw one of the raking shots from the schooner crash though the stern of the steamer, killing and wounding several, as was afterwards known. After this, a shore battery opening at long range, the steamer retired, having sustained considerable injury.

The blockade, declared April 1853 in an intestinal struggle, was hastily recognised by the foreign diplomatic agents and naval commanders. In this affair the foreign commercial and industrial community suffered from the unintelligible line of conduct adopted by the diplomatic agents. A policy diametrically opposed to the best interests of the foreign community has on more than one occasion been adopted by the diplomatic corps in the River Plate. Imperfectly informed or preferring the pursuit of some diplomatic aim to the interests of their countrymen, which are intimately bound up with the progress of the country in which they are settled, falling into the circles of the arbitrary chiefs, influenced by parties craftily appointed to pay them court to that

end, several of the foreign ministers, during critical struggles in these countries, have taken undisguised part with the retrograde and arbitrary factions, whose domination retarded progress, or whose success in their attempts at domination would have thrown back the country half a century. It may, indeed, be said, that Mr. Thornton was the first British representative who comprehended his true mission as minister to a country which had received so largely a body of British emigrants and shown a remarkable capacity for commercial relations. He was also the first who left Buenos Ayres at once approved by his own government and appreciated and regretted by his countrymen and the government to which he had been accredited.

On the occasion of which I am now treating, the discord was most marked. The combined diplomatic action of French, English, and American representatives, &c., was directly antagonistic to the interests which they were supposed to protect, and resulted ultimately in discomfiture to themselves. The diplomatic and consular agents of these nations became the active abettors of the retrograde party—the party of gaucho domination—and, in more than one instance the medium of communication between the besieging chiefs and the disaffected in the city. The British chargé d'affaires and the consular agent both fell into this indiscretion. The former committed himself most unfortunately in this way. I happened to be present when a man was taken, coming from the besiegers' lines, and on being searched communications were found on him which were to be passed through the hands of H. B. M.'s chargé d'affaires, who was known to retain towards the Rosas party a leaning stimulated by the diplomatic skill of the beautiful Madame —, a sister of the fallen Dictator. As a personal friend of the gallant captain and chargé

d'affaires, I hastened to his house to give him warning, and expressed the opinion that the discovery would lead to unpleasant consequences. Subsequently, from information obtained in official quarters, I communicated to him that in all probability he would be requested to leave Buenos Ayres. This in effect was done, and he withdrew on board H. B. M.'s steamer Trident, then lying in the port. Unfortunately also H. B. M.'s consular agent took a similar antagonistic course, and, availing himself of his official capacity, held close communication with the enemy, passing frequently through the lines to their camp. Unpleasant disputes ensued between him and the commander-in-chief and minister-of-war, Colonel Diaz, whereupon H. B. M.'s consul, in a very offensive and hostile note to the government, demanded his passports, a complication which would have seriously and especially prejudiced the government and British interests under existing circumstances. In this emergency the minister of government did me the honour (as being a personal friend of both) of placing the affair in my hands. In the course of a somewhat sharp and peremptory interview with H. M.'s consul, I succeeded in showing him that the course which he had taken was not politic, and advised him to withdraw the offensive note and demand of passports, which he consented to do. Another note, the matter of which was suggested, being written, and the minister of government doing the like, the difficulty was got over.

Meanwhile British interests were suffering immensely from the continuance of the siege and the blockade of the ports, and life and property were wantonly endangered by the besiegers, who instead of directing the shots at the defence, fired at an elevation and threw shot into the town, half the population of which was foreign.

The blockade became a 'job'—a trading job of the commander of the blockading squadron—as was to have been expected, and many vessels were permitted to run into port, not merely by connivance or through inefficiency of the blockading force, but by arrangement with the commander or admiral. Under these circumstances, the British commercial body, through their committee, appealed to the British admiral and diplomatic agent, and several letters passed, in which, on the part of the merchants, the inefficiency and venality of the blockaders were incontestably demonstrated; nevertheless, and in disregard of a distinct compromise made in the earlier part of the correspondence, contingent on a continuance of inefficiency and venality, which was also proven, no action was taken, and the blockade continued to be recognised.

Sir Charles Hotham and the Chevalier Saint-Georges, respectively French and British ministers plenipotentiary, had arrived about this time. Not knowing to whom they should address themselves, they took up their residence in Buenos Ayres, but did not present credentials to the government. At a later date they presented them to General Urquiza while besieging the city in which they resided—an anomalous position.

Before the correspondence was concluded between the British merchants and Captain Rt. Hon. R. Gore (chargé d'affaires) and the British naval commander, Admiral Henderson, I went as one of the committee of merchants on board the Trident, personally to demonstrate to Captain Gore the facts of the case, and pointed out to him, among other blockade-run vessels, a barque actually lying alongside H. B. M.'s Trident, discharging flour, which barque came in from alongside Coe's flag-ship, with whom the matter was arranged. Wishing by an act of justice to

the British merchants on the part of their representative to restore friendly relations between him and the government of Buenos Ayres; I had asked and obtained an authorisation as mediator, and received from the government full powers to arrange the difficulties. Captain Gore received the advances in a friendly spirit; the law of nations and the facts of the case were discussed at length, the inefficiency and venality of the blockade were so patent, so visible from the cabin windows, that diplomatic skill could not fence it out, and the result was an understanding which, had it been carried out, would have saved much mortification. The following morning, however, a private note intimated that 'the arrangement' must fall through, as Sir Charles Hotham held superior powers (though he had previously stated to the deputation that he was not the party to apply to) and was resolved on sustaining the recognition of the blockade. This resolve was subsequently announced in his answer to a memorial presented to him, bearing the signature of the British merchants of the port. A similar step was taken by the French merchants with a like result. At a later date, and only a week or two before his death, Admiral Henderson expressed to me, with the characteristic frankness of a British sailor, his deep regret and mortification at the course he had been compelled to take in the affair; indeed, he had been compelled to fall back from a distinct compromise officially made to the British merchants, and the private assurances which he had given to me.

When the failure of the memorial was known, large bodies of foreigners, much exasperated, assembled in the public squares and theatres, certain classes assuming a menacing attitude of a very serious character. A permanent committee was however named, consisting of

influential foreigners of all nations, to represent the community, and drew up a protest to which 5,000 signatures of foreign residents were affixed. A deputation presented it to all the foreign diplomatic agents. This met with the same fate as the memorials; it was coldly received and disregarded. Fortunately the dangerous excitement to which this gave rise was controlled by the influence of the committee, whose discreet conduct gained for foreigners a weight and respect in the country which have been productive of much good.

At this juncture an unexpected turn was given to affairs, to the great chagrin of the partisan foreign ministers plenipotentiary and special. The object of the chiefs of the blockading squadron was to make the best business possible for themselves. It was ascertained that Captain Turner was willing, for a 'consideration,' to return with his ships, and deliver them to the Buenos Ayres government, and admiral Coe was open to terms and was not at all scrupulous. One night, when I was about to retire to rest, the first secretary of the 'minister of government' knocked at my door, the bearer of a special message inviting me to step down immediately to Government House. The government had received propositions from Coe for his passing over to the city with the vessels he could command, and the government, very hard pressed by sea and land, desired to ascertain what foreigners and the world generally would think, if they accepted or rejected the terms proposed. As Coe's proposition involved the blowing up of two vessels and crews (belonging to Turner), on which he believed he could not calculate, but which were in reality anxious to 'treat' on their own account, the opinion was given that the government should reject decisively the terms proposed as utterly monstrous and inadmissible. The government determined accordingly.

Shortly afterwards the Buenos Ayrean government having offered a good price, and deposited the gold ounces on board an American man of war lying in the river, the whole blockading squadron came into port, and anchored under the guns of the fort, with the Buenos Ayres flag flying.

It was not long after this that a course of very able intrigue, directed by the minister of government Dr. Don Lorenzo Torres, resulted in sowing dissension and distrust in the enemy's camp.

When this intrigue was ripe, an official visit of the foreign ministers plenipotentiary, French, English, and North American, to repeat offers of mediation, enabled the government to communicate to these gentlemen, 'under reserve,' a well-timed intimation, to the effect that, on the following day, the whole force of the city would make a grand sally under command of General Paz, commander-in-chief and minister of war, whose absence from the diplomatic meeting was apologized for on the ground that he was preparing for the attack on the besiegers. This finished the affair of the siege.

The foreign ministers having retired, Mr. Pendleton, North American minister, hastened to the enemy's camp and communicated the 'intimation under reserve.' Before morning the whole force of the besiegers had dispersed, and General Urquiza, with his body guard, was taken on board H.B.M.'s. steamer Locust, boats being sent to receive him a little up the coast (July 1853).

While on board H.B.M.'s. Locust, General Urquiza, as provisional director of the thirteen provinces of the Argentine Republic, signed a treaty with Sir C. Hotham confirming the free navigation of the rivers.

The termination of this struggle was the turning-point in the history of these countries. Constitutional govern-

ment superseded an arbitrary domination of the most repressive character, and the country advanced as if by magic. Real estate rose in value, two, four, six, eight fold in a few years, and 'stock' more or less in the same ratio. The whole face of the city was changed ; industrial undertakings springing into life were encouraged and fostered, the force of the reaction showing the weight of oppression which had rendered all growth impossible.

There were of course errors and extravagances committed—so changed an order of things could not fail to engender them—but they were *relatively* unimportant in the strong current of progress. There were tendencies to reprisal to be restrained, the incipient revolution in the Campo to be suppressed, and social order to be established. 'Departments' that had been under the rule of military 'commandantes' were subdivided, and justices of the peace, appointed to the subdivisions, succeeded to many of the powers and functions that had been heretofore arbitrarily exercised by military chiefs.

The position of Buenos Ayres was not a little difficult. She had prevailed in a struggle which, had it gone otherwise, would have made her quite secondary in political influence ; nor were there wanting inveterate provincial jealousies which, in the event of her defeat, would have gathered to a head. She was not strong enough to take the offensive against those whom she had worsted before her own defences ; nor would it have been well that she should have been so : her real strength and interest lay in the establishment of internal order. The incapacity for serious offensive operations on both sides, necessitating a pause, afforded time and opportunity for establishing order, for working out constitutional problems, and for blowing off the steam of excitement and passion.

General Urquiza had imbibed the constitutional spirit,

although he could not at once and at all times divest himself of earlier influence and habits of rule, and adhered to the project of constitutional government in the federal union of the provinces under a Presidency.

A congress was convoked and a constitution decreed, but the representation accorded to Buenos Ayres left her so greatly in a minority, that the political influence to which the relative number of her population and her position as the great centre of commerce, intelligence, and wealth entitled her would have been lost. So at least her statesmen believed. If, moreover, General Urquiza occupied the presidential chair, she would come directly under his rule, and a large portion of her resources would have been at the disposal of the very man whom she had successfully resisted in the field. She therefore elected to remain in a state of isolation, awaiting the opportunity when she could enter the Confederation and hold in it the position to which she deemed herself entitled, and which was without doubt necessary to the consolidation of a respectable national power. The position which she had chosen, or been by circumstances forced to assume, was critical ; but, as the result proved, it was a safe and wise one, so long as she made no offensive movement. The prolonged pause was just what both parties needed ; it gave men time to know and appreciate material progress such as had not been dreamed of ; it taught them to appreciate order and that constitutional policy which ensured it. Dr. Don Pastor Obligado, who had been provisional governor during the latter period of the siege, was the first constitutional governor of Buenos Ayres, elected in 1853.

With the exception of sundry revolutionary raids, organised in the neighbouring province of Santa Fé and

easily crushed,\* order was maintained, and the general peace was not seriously imperilled until 1859, at which time Dr. Don Valentin Alsina for the second time was governor of Buenos Ayres, General Urquiza being still president of the (thirteen) Argentine Provinces. The government of Parana, the seat of the Presidency, had done everything in its power, politically and commercially, to irritate the province of Buenos Ayres during her isolation. Differential duties were established ; the port of Rosario in Santa Fé was created chief port of the Confederate Provinces under the action of these duties, and multifarious restrictions were adopted prejudicing the commerce of Buenos Ayres ; nor were there wanting incessant mutual recriminations.

Don V. Alsina appears to have been ill fated. Shortly after this his second installation in the governmental chair, the passive or negative enmity which existed between the two governments of Parana and Buenos Ayres changed to active hostilities, which, though ultimately inevitable, were precipitated by the personal and political antagonism of Urquiza and Alsina. General Urquiza, at the head of a well-appointed army of the Confederate Provinces, marched into the province of Buenos Ayres, and was met by General Bartolome Mitre, at the head of the National Guard and other forces of that province, at Cipeda (1859-60), about fifteen leagues distant from the town of San Nicolas, on the river Parana. The cavalry of the Buenos Ayrcans dispersed on the approach of the Confederate forces, leaving the infantry and artillery alone on the field. These held their own till nightfall, when, forming squares with some light artillery in the centres, they commenced their retreat upon

\* The more important of these raids were headed by Cola. Lagos, Costa, Bustos, &c., and in them several of the turbulent Candillos fell.

San Nicolas. Marching all night amid darkness and rain, abandoning most of their artillery by the way, they reached San Nicolas and thence embarked for the city of Buenos Ayres.

General Urquiza marched on Buenos Ayres. The city had made no defensive preparation adequate to resist his well-appointed forces and artillery, and at best she had before her a disastrous siege. The conduct of General Urquiza on this occasion was most moderate, conciliatory, and patriotic. The influence of the population was brought to bear, and Alsina, in accordance with its wishes, resigned. Buenos Ayres entered the Confederation on certain specified conditions, and Urquiza, retiring with his forces, immediately afterwards resigned the presidency of the republic. Don Manuelo Campo was named Provisional Governor of Buenos Ayres. Too much praise cannot be given to General Urquiza for his conduct on this occasion. He had learned the lesson of forbearance, and comprehending the vast importance of winning Buenos Ayres, and knowing that there existed in the province strong antagonism towards himself, he adopted the wise course of moderation and conciliation, and withdrew on obtaining its adhesion to the confederation. Dr. Derqui was elected President of the Argentine Confederation, General Urquiza being general-in-chief of the forces and governor of Entre Ríos, and General Bartolome Mitre was elected governor of Buenos Ayres. The policy of Derqui was anything but conciliatory or satisfactory. As dictatorial as he was impolitic, he made enemies on all sides, and was soon embroiled with Buenos Ayres, which, though worsted in the last struggle, was in no wise disposed to submit to a yoke and a secondary position where she had stipulated for a share in the Government commensurate with her importance and con-

sistent with her interests. Nor would she consent to allow resuscitated retrograde factions to endanger the influence of the enlightened section of the population and the constitutional institutions which had grown up within her. She prepared herself, therefore, for another struggle, and it came. President Derqui collected a considerable force in the north ; General Urquiza, crossing with Entre Riano troops, effected a junction with him, and they directed their course for the province of Buenos Ayres. General Mitre met them at Pavon, in Santa Fé (1861), with a result the reverse of Cepeda. General Urquiza, himself disgusted with Derqui, and perceiving the danger involved in the possible domination of the retrograde and turbulent faction which joined the movement, held aloof with his Entre Rianos from the actual fight. The cavalry of President Derqui's army dispersed on the attack of the Buenos Ayreans, and the infantry gave way on the advance of General Mitre's artillery and infantry. General Urquiza turned about and quickly rode off with his troops. Derqui fled the country, and General Bartolome Mitre—a liberal-minded and accomplished gentleman, a cool, far-seeing statesman and soldier, eminently conciliatory, and essentially constitutional in his views and acts—was elected President of the Argentine Confederation (1862), with the seat of the National Government in Buenos Ayres, by consent of the Provincial Legislature, for the term of Mitre's presidency.

The understanding arrived at between Urquiza and Mitre—before or after Pavon—with the concord which grew out of it, is perhaps the most important and satisfactory feature of the epoch. There can be no doubt that the well-being of the republic and the consolidation of the constitutional government depend mainly on the concord of Buenos Ayres and Entre Rios and their re-

spective rulers and governments. There have not been wanting persevering factious efforts to disturb this concord. Influential parties in Buenos Ayres and elsewhere, hostile to Urquiza on the one hand and to the liberal party of the nation on the other, have striven to ferment dissension, and it redounds to the credit of Urquiza that the wooings of the one and the revilings of the other have alike failed to withdraw him wholly from the national interests; it also redounds to the credit of the President and the National Government that their wise conciliatory policy has proved equal to every difficulty.

The approaching end of President Mitre's term of office, 1868, naturally gives rise to anxiety, more especially as the period conceded for the permanence of the seat of the National Government and Congress in Buenos Ayres expires with it. Its further permanence or removal, therefore, becomes an open question, on which extreme political opinions will be brought to bear; and its solution may very much depend on the President that may be elected and the good-will and conciliatory policy of the Provincial Government. The highly beneficial results which, under the presidency of General Mitre and his very able ministers, have accrued from the presence of the National Government in Buenos Ayres, are patent. If the natural law of modification is to act beneficially, there must be contact with the larger world without, and wider views and more civilising influences must be extended to the more distant and lesser centres (the provinces) of the Confederation. The seat of government, in order to be at once national and creative, needs to be in a centre of wealth and industrial energy, where the influence of a vast immigrant population is destined so largely to assist and direct the material and political

development of this country, or of any country fortunate enough to receive it.

The parties in Buenos Ayres are (1) the National party, seeking consolidation and true national life, and the leaders of which desire, for the most part, the continuance of the seat of the National government in Buenos Ayres ; and (2) the Provincial party, which desires, or at least at one time desired, its removal to some small town or district, to be declared federal ground, and a section of which advocates the policy of isolating Buenos Ayres, a policy which, if carried into effect, would indefinitely postpone the realisation of national existence, and thereby perpetuate revolutionary chaos and render the Argentine provinces mere pygmies in presence of relatively powerful neighbouring nations. This party owes its origin to an innate provincial leaning, made stronger by the antagonistic spirit begot by past struggles, and counts not a few of its adherents among the younger men of extreme views impatient of restraint and impulsively patriotic. It is a party, nevertheless, essentially of progress, and, under its present leaders, conciliatory : the actual Provincial government being in perfect accord with the National. There is also (3) the malcontent and, in the littoral states, declining party, miscalled 'Federal,' consisting mainly of the late partisans of the Dictator's rule and of men whose chances lay in troubled waters. Out of Buenos Ayres this party has a tolerably widely-extended, though scattered, connections, and numerous sympathisers in the Upper Provinces, where there is but a faint conception of constitutional institutions, and where many local and errant chiefs are always ready to raise disturbance and join in revolutionary movements.

This party, equally opposed to the National and to the Provincial government of Buenos Ayres (its adherents were

thrown over by Urquiza at Pavon), is countenanced by the party in the Banda Oriental known as the 'Blancos,' which has recently been driven from power by General Flores, aided by the forces of Brazil, and more or less directly supported by the Argentine government and the Buenos Ayrean provincial party.

I have already stated that the political creed of the Monte Videan (Banda Oriental) government is a matter of very great importance to the ruling power in Buenos Ayres and to the Argentine Confederation at large, and it is looked upon as a necessity that the dominant powers on both banks of the La Plata should be in accord in policy. There is another nation which is deeply interested in the policy of the Banda Oriental, viz. Brazil. The party in the Banda Oriental opposed to the interests of the liberal and constitutional parties—i.e. the Provincial and National—in Buenos Ayres, is opposed to the same interests in Brazil; hence it is regarded as diplomatically and *de facto* hostile to both Brazil and Buenos Ayres, and also to the Argentine Confederation constitutionally governed.

It was to prevent the domination of the Dictator Rosas (whose hostility to Brazil has been stated) on the Banda Oriental, through the Blanco party and its then chief Oribe, that Brazil entered into alliance with General Urquiza, and sent his forces to raise the siege of Monte Video and overturn Rosas in Buenos Ayres. It was to render nugatory the alliance formed by the Blanco government of Monte Video with another hostile power (Paraguay) that Brazil aided, and the Liberals of the Argentine states countenanced and supported, General Flores in the movement which overturned it and reinstated the friendly rule of the Colorado party, with Flores as president. In these events there is a *primâ*

*facie* basis for the most friendly relations between Brazil and the Argentine Confederation.

Before we notice the chief features of the present time, the triple alliance—Brazil, Argentine Confederation, and Banda Oriental—and the Paraguayan war, it may be worth while to make a few remarks on Entre Ríos and its ruler Urquiza, as their connection with the most significant political parties and events tends not a little to complicate the question.

The province of Entre Ríos under its present ruler is, after Buenos Ayres, the most powerful in the confederation. Commercially and industrially it is second only to Buenos Ayres, which, however, is vastly in advance of all others. The geographical position of Entre Ríos renders it strategically of very great importance in relation to the Banda Oriental, Brazil, and, together with the province of Corrientes, to Paraguay. The power of General Urquiza and the strategical position of the province necessarily invest it with special interest, as affecting materially the doctrines of the confederation, its integrity or dismemberment. General Urquiza, supreme in influence as in position in Entre Ríos, has it in his power to contribute largely, not only to the general good, but to the 'national life' of the Confederation of the Fourteen Provinces; he might also, were he through excess of ambition so disposed, cause much evil. During his rule of nearly thirty years he has witnessed various phases in the political existence of the States of the River Plate: his early connection with the so-called Federal party during the Rosas dictatorship, and his subsequent fast-and-loose relations with it, placed him in antagonism with the liberal parties. A certain independence of action, even during the rigour of the Rosas domination, marked him, however, as the man who might bring about important changes, as in effect he

did. A repellent policy in the hour of his great triumph over Rosas brought him into antagonism with the population of Buenos Ayres and its strong provincial feeling. After his adhesion to the project of a constitutional confederation, his attempt to coerce Buenos Ayres by joining Lagos and the rest of the former party of Rosas, with all its concomitants of Candillos, Terrorists, &c., still further intensified this antagonism. It was not until the battle of Pavon that he openly broke his connection with the so-called Federal faction and its Candillos, nor have these ceased to look expectantly to him; and he has probably been led to coquette with them in order to maintain a counterpoise to the opposition which is still displayed towards him by a certain section in Buenos Ayres, and which would become more general were he again to aspire to a position higher than his present one. He has enormous wealth, and, as I have stated, is chief merchant and estanciero of Entre Rios. This fact has beyond doubt materially influenced his policy; his riches, his ambition, and his patriotism have each exercised a powerful sway over him, and have led him to seek in the balancing of parties a position which would at once secure his possessions and at the same time be neither ungrateful to his ambition nor altogether inconsistent with his adopted political creed. The course of intrigues to which this has given rise was likely to excite and keep up suspicion, while in effect it served a higher purpose, inasmuch as, holding in check certain extreme parties, it gave time for that fusion which, dating from Cepeda and Pavon, has given birth to the moderate and constitutional policy represented by the party at the head of which is the actual president of the Confederation and national executive.

Some passages, indeed, in Urquiza's policy since the

commencement of the war with Paraguay have not yet been explained by their results ; but, in all probability, it will appear that they were determined by the same principle of maintaining himself in a 'balancing position,' and that the national government recognised this attitude, expressing thereby their approval of the moderation manifested after Cepeda and the battle of Pavon. It is natural to suppose that the imposing and menacing power of Paraguay and certain previous good offices of its ruler, together with Urquiza's obligations to Brazil and his desire for the consolidation of Argentine national and constitutional life, as well as his individual stake, have not been without their weight ; as, indubitably, he has been influenced by the strong provincial antagonism of sections of the populations of Entre Rios and Buenos Ayres. He virtually stands in an expectant attitude which the issue of events now in progress may determine for good or evil.

The war in which the Argentine Confederation, in alliance with Brazil and the Banda Oriental, is at present engaged against the powerful despot of Paraguay, is the greatest she has ever known.

It has been stated that Brazil is deeply interested in the policy of the Banda Oriental government. Brazil has grave questions—questions of important territorial limits—with Paraguay. The extraordinary development of the offensive power of Paraguay, the great and incessant accumulation of naval and military armaments and munitions of war under the master-hand of her dictator President Lopez—a man of unquestionable talent and energy, as of unbounded ambition—had with reason become a source of apprehension to her neighbours, while the undisguised hostility of Lopez to Brazil left no doubt of their object.

President Lopez had recognised the vulnerable points of Brazil; he had intrigued and entered into close relations with the government of the Banda Oriental, at that time in the hands of the party hostile to the interests of both the empire and the confederation.

A glance at the map will show that part of the old Missiones territories which are now possessed by Brazil and which are claimed by Paraguay adjoin that state, and likewise the Missiones of the Argentines, appertaining to the province of Corrientes, and to which also Paraguay has pretensions. She likewise claims part of the Gran Chaco on the Argentine bank of the rivers Paraguay and Parana, considered Argentine territory, and rendered especially important to the confederation by the rivers which course through it from her northern provinces and debouch into the Parana and Paraguay rivers. Between Paraguay and the Banda Oriental and the accessible frontier of Brazil intervene the Argentine provinces of Corrientes and Entre Rios, Paraguay being separated from Corrientes by the river Parana, from the junction of the Paraguay upwards, and the Banda Oriental from Entre Rios by the Uruguay. The provinces of Entre Rios and Corrientes are separated from the rest of the confederation by the river Parana below the junction of the Paraguay.

The hostility of Paraguay and Brazil was notorious \* and the warlike preparations, immense for a central South American state, made by President Lopez, of Paraguay, were with the object of striking a fatal blow on the most vulnerable and accessible part of the empire.

\* The questions of limits to the north of Paraguay, between that state and the Brazilian province of Mattogrosso, and those of the navigation of the Alto Parana, which is of great importance to the back province of Brazil, are of old standing.

Then, arming the negro slave population, he trusted with them to attain the summit of his ambition. The only practicable road lay manifestly through the Argentine territory of Corrientes, Correntino, Missiones, and Entre Ríos ; and he determined, therefore, by fair or foul means, to use these Argentine Provinces for his purpose, and so ultimately to absorb them. To this end, and to insure the completeness of his plan against Brazil, an alliance with the Banda Oriental, whose whole northern frontier adjoins the somewhat turbulent Brazilian province of Rio Grande, became a necessity. He therefore offered himself, in fact constituted himself, champion of the Blanco government of Monte Video, fomenting its hostility to its immediate neighbours. There are also grounds for believing that he initiated negotiations with General Urquiza with the object of gaining his cooperation. It was clearly, therefore, against the vital interests of Brazil and the confederation that the influence and alliance of Paraguay should prevail in the Banda Oriental, and it was of primary necessity to defeat it before the storm thus gathering should burst and the hordes of Paraguay rush in and occupy the whole southern and south-western provinces of Brazil. Hence it was that General Flores, the chief of the party in the Banda Oriental favourable to Brazil and the Argentine Confederation, which had been expelled from power by a Blanco revolution, was encouraged, and more or less supported, in his attempt to recover power, both by the Brazilians and Argentines, and ultimately, despite the threats of Paraguay, or rather owing to them, reinstated by the forces of the empire.

Paraguay, making this a *casus belli*, declared war against Brazil ; and having gone through the form of asking permission of the Argentine Government to use

their territory as a road and basis for operations against Brazil, a request which of course could not be, and was not, granted, Lopez, without waiting until any notification or declaration of war could reach the unprepared Argentine Government, invaded the province of Corrientes, desolated its plains, took its chief city and towns, pillaging and making captives, and further seized the small Argentine war vessels lying in the port of Corrientes.

Some who have but vague ideas of the influences which direct the policy of Brazil and the Platine States regard it as an error on the part of the National Government of the Confederation that they entered into alliance with Brazil and the Oriental Republic and joined in the present war. The alliance, in itself, is essentially natural, when it is remembered that Brazil gave freedom and constitutional life to the Argentines by overthrowing Rosas and immediately withdrawing her troops when she had done so; that she saved Montevideo from his grasp by raising the protracted siege, which England and France had failed to do; and that, in effect, she restored the rule of the party favourable to the Argentine National Government, as to Brazil, in the Banda Oriental. The alliance was also needed as a counterpoise to the overwhelming power of Lopez, and to prevent the absorption of a most important portion of her territory and the dismemberment of the Confederation. It was further necessary to prevent the civilising influences which had grown up within her from being utterly uprooted—a result which must have followed the domination of the relatively barbaric power which President Lopez represents.

Looking beyond the crude fact that war *per se* is a scourge, I am disposed to anticipate future good from this present evil of a great war. The war with Paraguay

is a foreign and not an intestinal one ; and, moreover, it is carried on in alliance with another and more powerful nation, which necessarily has a controlling or sedative influence. Even if the direct result of the struggle should fall short of the issues sought by two of the principals, Paraguay and Brazil, its effects on the Argentine Confederation are scarcely a matter of doubt. It cannot fail so far to break the offensive power of Paraguay as to reduce her pretty much to the level of power now possessed by the Confederation, and render unlikely the resumption of hostilities for a long time to come. A period of peace will therefore follow, which will afford the Argentines an excellent opportunity for prosecuting their political and industrial programme. The war will have practically shown the necessity of union\* and national integrity, and the need of maintaining a small but disciplined army, properly equipped in all arms, which will supersede those irregular levies so continually made (under the National Guard system), which are most fruitful of civil strife and incompatible with industrial progress and the 'rooting' of a population ; and, further, such regular and disciplined force, in connection with the immensely improved and daily improving means for locomotion from Buenos Ayres, will enable the Constitutional Government to stamp out or overawe the turbulent and revolutionary factions in the more distant provinces. Such benefits would indeed be cheaply bought at the cost of all the blood and treasure which the war has entailed.

Even while I write, the western and northern provinces are convulsed, and notorious Candillos are in open revolt against the National government, and the several

\* Already it has resulted in drawing together the Provincial and National parties of Buenos Ayres.

governments are availing themselves of the circumstance of the Paraguayan war to reap each its own harvest.

President Lopez, having declared war against Brazil and invaded the Argentine province of Corrientes, the offensive and defensive 'triple alliance' of Brazil, the Argentine Confederation, and the Republic of the Uruguay (Banda Oriental) was entered into, and energetic steps taken for prosecuting the war against Paraguay. The Brazilian fleet, joined by the few small vessels of the Argentine Confederation, was concentrated in the river Uruguay and the adjacent waters. The little town of Concordia in Entre Ríos and on the bank of the Uruguay river having been chosen as the base of operations, troops and levies were gathered to a point as rapidly as possible, and drilled and organised as they arrived.

General Urquiza cited his Entre Ríano levies. These he has under such perfect control, that he has only to issue an order that every man able to bear arms (all are enrolled in their several districts) shall present himself with two horses, one saddled, the other led, on a certain day, and few, if any, will fail to comply, the penalty being that of deserters. In obedience to his citation, the levies were gathered together and encamped to the number of 6,000 men. Shortly after, an unwonted manifestation of discontent took place among both officers and soldiers, and the entire force disbanded, each man returning to his home, and General Urquiza, with his household troops, retiring to his seat, the splendid mansion of San José. All this took place without any apparent misunderstanding with the general-in-chief of the allied forces, President Mitre. This circumstance and several minor ones are among those which are as yet unexplained.

Meanwhile, the Paraguayan forces overran the northern part of the province of Corrientes, sacking towns and

sweeping the Campo of cattle and horses. General Caseres, governor of Corrientes, with a body of irregular cavalry, and one of the Argentine generals, Pannero, with a small force of regular infantry, observing them at a respectful distance, and harassing them when opportunity offered. Probably incited by the prevailing impatience in Buenos Ayres, manifested at that inaction of the allied forces at Concordia which was necessary for the accumulation of material and of forces and their organisation, General Pannero, embarking his small force in Brazilian vessels of war and transports at a point lower down on the river Parana, ascended to the city of Corrientes, which was strongly occupied by the Paraguayan troops. Landing under protection of the vessels, he stormed and took the place, not without very serious loss—600 out of his force of about 2,000 being 'hors de combat.' It was a fruitless victory, as the approach of an overwhelming force of Paraguayans compelled him to re-embark his men after a brief occupation.

The left wing of the Paraguayan army occupying Corrientes crossed that province and the Missiones to the river Uruguay, where, north of Entre Rios and the Banda Oriental, it bounds Brazilian territory, and seized the Brazilian towns of Yatay and Uruguayana, the Brazilian garrisons retiring. These towns they fortified. The Paraguayans having, in their operation, detached their left wing completely from the main body, the allies, with their right wing, moved north-east from Concordia to operate against them. They succeeded in intersecting the line of the Paraguayan communications, and one after the other the towns of Yatay and Uruguayana fell to the allies, the garrisons surrendering to the number of nearly 8,000 men.

The allied force, 30,000 to 35,000 strong, now moved

northward from Concordia through Entre Ríos, and entered the province of Corrientes. The Paraguayans abandoned Corrientes on their approach, and recrossed the Paraná to their own territory, transporting all the cattle and horses they could collect, and taking with them considerable booty.

Coincident with the march of the allied army, the allied fleet, ascending the Paraná, remained some time in front of Corrientes city, protecting the landing of munitions. The allied army, following on the tracks of the Paraguayans, took up its position in front of the Paso de la Patria on the Paraná, the Paraguayans occupying the opposite bank, on which they had erected batteries.

The allied fleet, ascending to Riachuelo on the river Paraguay, were attacked (June 1865) by the Paraguayan fleet, consisting of eleven steamers and some forty 'chatas' (flat-bottomed raft-like boats carrying guns of 68 and 84lb shot), with great vigour. A desperate engagement ensued, well fought on both sides (as competent naval commanders of Europe and North America report), and resulting in the defeat of the Paraguayans, with the loss of five steamers, several chatas, and 3,000 men (admitted by President Lopez).\* One of the larger ships of the Brazilians was boarded, but subsequently retaken. The loss of the Brazilians was also very severe; their flagship, completely riddled, ran aground in front of a Paraguayan shore battery, and was abandoned; and others were more or less seriously injured.

This naval fight, I am informed, presented features of interest in the contest between the Brazilian iron-clads and the Paraguayan chatas, the latter inaccessible in the

\* This heavy loss of men arose from the fact of their bringing with them strong boarding parties.

shallows, and carrying heavy metal almost on the water level.

The Paraguayans retired up the stream, with the remainder of the fleet, to Humayta, an exceedingly strong fortress, mounting about 180 guns, and commanding the stream across which stone-laden vessels are moored, completely barring the passage. The approach, for some distance down the stream, is studded with 'infernal Machines,' by one of which, some months after the naval engagement just mentioned, a Brazilian iron-clad was blown up, while proceeding, with other vessels, to bombard a strong position and fort erected by the Paraguayans lower down the stream than their principal fortress of Humayta.

The allies determined to cross the Parana at the Paso de la Patria under protection of the fleet. This was a great undertaking, needing long preparation, the building of rafts and boats for the transport of horse, foot, and artillery, munitions, provisions, &c. While these were going on, the Paraguayans continually harassed them: from behind the islands, from the wood-fringed creeks, attacking parties, issuing unseen at night and landing, fell upon the advanced guards. On one occasion, the Brazilians having occupied an island on which they were erecting batteries to command those on the Paraguayan side, the Paraguayans made a fierce attack, landing before dawn with a strong force, taking the Brazilians by surprise, and driving them from their works. The latter, however, rallied and drove the Paraguayans to their boats and canoes, playing upon them with artillery as they recrossed the river, and causing great loss. The Paraguayans lost also several of their formidable chatas, which, lying in the shallows, were paddled out to engage Brazilian vessels moving up or down stream. In one of these engagements the chatas inflicted severe injury to one of the iron-

clads, crashing shot and shell through the turret ports, killing the commander and several officers and men. These chatas were ugly customers, and hard to hit or injure.

All preparations being made, the allies crossed without opposition. Their island batteries commanded the Paraguayan shore batteries. The Paraguayan encampment, also being within range of their guns, became untenable. Lopez, therefore, retired to wait the coming of the allies at Estero Bellaco, about eight to ten miles inland—a position approached through morass and protected on the flanks by wood and jungle. On the approach of the allies a desperate hand-to-hand fight ensued in morass and wood, with fearful loss on both sides, no quarter being given. The result was that the Paraguayans drew off at night to another strong position behind entrenchments and a short distance in the rear of the battle-field, which, on the following morning, was occupied by the allies.

Subsequently the Paraguayans attacked the allies in their entrenchments, and another hand-to-hand fight ensued in the woods, and before and in the unfinished entrenchments. These in part they penetrated, but were finally driven back with very heavy loss. Both parties now employed themselves in strengthening their positions, until the Paraguayans erected enfilading batteries under cover of the woods, which it became necessary to take. An attack was accordingly ordered; the enfilading positions were taken and retaken, finally remaining with the allies; but, pushing forward their attack through the woods to the Paraguayan entrenchments, they were driven back from these after carrying their assaults right up to the guns. Full twelve months have elapsed, and still both parties occupy, more or less, the same ground—in all but impregnable entrenchments covered by 'abatis'—the

more advanced being within long-range shelling distance from each other.

The position held by the allies is a difficult one to retire from were they so disposed. There is, however, no choice of ground for operating and there is no scope for manœuvring. The nature of the country of the southern part of Paraguay, in nearly its whole extent, presents to an invading army almost insurmountable difficulties of forest, jungle, and swamp. Flank movements to the right of this actual position are impossible, from the nature of the country ; and the portions of the Paraguay entrenched camp and fortifications to the left centre bar the way to the more open country, to reach which it would be necessary to cut through the Paraguayan lines. On their right the Paraguayan army could be flanked, and its position turned, compelling it to retire to Humayta, were it not for a strong fort and entrenched camp at Curupaiti on the Paraguay river.

To attack this place the Brazilian fleet, including three or four iron-clads, moved up the Paraguay river, in combination with a land force of several thousand men. Before reaching it, however, they were saluted by a heavy-mounted battery or earthwork fort, of the existence of which, it is said, they were not aware ; and the wooded nature of the country perhaps justified this presumption. After a heavy cannonading, this fort and entrenchment, called Curusu, was taken by assault, with the loss of nearly one-third of the attacking force. It was in moving up the river to undertake these operations that the Brazilian iron-clad struck one of the infernal machines (torpedoes) and was blown to pieces.

The Brazilians occupied Curusu, strengthened its defences landwise, and especially on the side fronting the principal Paraguayan fortification of Curupaiti, and repelled a

vigorous attack directed against it from the latter. It was now determined to attack Curupaiti, and a body of 6,000 or 8,000 Argentines, detached from the left of the allied position, joined the Brazilians at Curusu. The Brazilian fleet having bombarded the place for several hours, the assault was given with great intrepidity and resisted with determination and bravery. The first line of defences was carried; but this was only one of three, and the impetuous assailants found themselves checked by an insurmountable abatis, behind which was a great fosse 60 feet wide, and 30 feet deep. The keen-fighting Paraguayans at the other side, pouring deadly volleys into the allies as they struggled in the abatis, obliged them to retire with severe loss. That the attack was ever made in the way it was, is simply unaccountable, as it was leading men to certain annihilation. The Paraguayans and the allies now face each other respectively in impregnable positions—if we consider their available resources at Curusu and Curupaiti—as their main bodies do in front of Estero Billaco. The war therefore appears to depend in its issue on the resources of one of the parties outlasting those of the other. The allies are now sending up large supplies and many men, with the object of making a grand effort to pierce the Paraguayan lines.

In the foregoing sketch I have endeavoured in as few words as possible to convey an accurate idea of the general position of the belligerents, merely presenting the salient points of military and naval operations, the details of which (as extending over more than two years), however interesting to the people of these countries, and to military and naval judges, would occupy too much space in the present volume.

The division of Banda Oriental troops, about 2,500

men under General Flores—‘the Untiring’—which formed the van guard of the allied forces, and which in the several attacks of the Paraguayans was hotly engaged, sustaining extremely heavy losses, dwindled to a few hundred men; and President Flores’ presence being necessary in Monte Video, he embarked with this remnant and returned to that city.

It had also become necessary to take decisive steps, as the revolutionary movement in the upper and western provinces of the Argentine Confederation was gaining strength.

The leaders of this movement were the notorious Candillos Videla, the same who betrayed Lavalle, and more recently commanded the right wing of the forces that besieged Buenos Ayres under Colonel Lagos and the brothers Felipe and Juan Saa, the latter a fierce and intrepid leader in irregular warfare, whose very name was a terror.

The governments of San Juan, Mendoza, Rioga, and Catamarca were overturned by the revolutionists, Cordova and San Luis disturbed, while Indian raids were made into the province of Santa Fé and the north-west of the province of Buenos Ayres. Under these circumstances it was necessary that part of the Argentine troops should be withdrawn from Paraguay to make head against the revolutionists. The experienced Argentine General Pannero, with a body of National Guard and a few regulars, moved up to the Rio Cuarto, San Luis, and General Taboada of Santiago di Estiro\* marched his forces on to the frontier of Cordova, alike menacing the rebels in La Rioga and overawing the disaffected in Cordova. The rebel forces had however acquired considerable

\* The brothers Taboada, the one governor, the other general, of the forces of that province, are ever faithful to the National cause.

strength and occupied several provinces, and it became necessary to bring down further troops from the army in Paraguay before any operations could be undertaken. President Mitre, therefore, arranging his plan with the Brazilian generals and admiral, who placed their vessels at his disposal for the purpose, came down to Rosario in Santa Fé with the required troops, which were forwarded thence by the Central Argentine Railway as far as the line is open, and thence marched to effect a junction with General Pannero and Colonel Arredondo, who were encamped near the Rio Cuarto.

Saa and Videla, having at this time gathered under their immediate command 3,500 men, were moving for the Rio Cuarto. Pannero, to bring them to action, detached 1,200 men under Arredondo to his right, and on the line of march of the rebel forces. On this wing the rebel chiefs fell with their 3,500 men and artillery, expecting to annihilate a force so weak in number; but discipline and experience in regular warfare, in the Paraguayan campaign, prevailed, and the rebels were completely routed and dispersed. To the north, in the Cuyo district, the rebel forces were also defeated and dispersed by General Taboada. The revolution was thus entirely and speedily crushed. Its chiefs, and such of their adherents as remained with them, fled across the Andes into Chilian territory, where they gave up their arms.

Thus was crushed this Candillo revolution, formidable in numbers as in its chiefs, which in times not yet distant would have sufficed to carry anarchy to the farthest limits of the Confederation. *Steamers* brought disciplined troops from the army in Paraguay to Rosario and the Central Argentine *Railway* (the first section only as yet finished) conveyed them to within a short distance of

the nearest position of the rebel levies, the result confirming in a marked degree the opinion which I have ventured to pronounce, that improved and improving means of locomotion, and the experience gained from the Paraguayan war, will enable the National Constitutional Government to 'stamp out' all disturbing elements, and extend civilising influences in the more remote provinces of the Republic. If the foregoing historical sketch has been overcharged with details of revolution, war, and bloodshed, it will be my more pleasing task in the following paper to treat of political, social, and industrial progress.

## P A R T I I.



POLITICAL AND INDUSTRIAL DEVELOPMENT AND SOCIAL  
MODIFICATIONS RESULTING FROM IMMIGRATION AND  
IMPROVED LOCOMOTIVE FACILITIES.

AFTER the storming of Monte Video by General Beresford (1806) and the capitulation of General Whitelock in Buenos Ayres (1807), and more especially after the War of Independence, many foreigners, chiefly British, found their way to these countries. After the notification of the treaty with Great Britain conceding to her subjects unrestricted trading rights, with protection for their lives, properties, stock, and merchandise, and exemption from military service, forced loans and all other exactions whatsoever,\* many British subjects settling in Buenos Ayres and the Banda Oriental purchased properties and live stock, entered into local trades and industries, or initiated new or improved systems of industry, mechanical trades, pastoral and agricultural pursuits, effecting great improvements in produce, and expanding the commerce between the two nations.

A considerable impulse was given to the commerce and industry of these infant republics by the early rulers, and especially in Buenos Ayres by Revadavia, an earnest advocate of education, free institutions, commerce, and immigration.

\* Other nations subsequently obtained similar treaties.

During the long dictatorship of General Rosas, however, the Argentine States fell under the moral depression which corresponded to their political circumstances and the policy of the Dictator. Far from affording facilities for commerce (which worked its way by the force of necessity and of the innate capacity of the countries for it) and for the development of trade with the interior, vexatious restrictions and exactions were imposed. The great artery of water communication, the Parana, was kept closed to the world; Paraguay was hermetically sealed, under the barbaric despot Francia, neither ingress nor egress being permitted. The raw or rudely prepared produce of the provinces on the banks of the Parana was dropped down the river to Buenos Ayres in small craft and 'chalanas' (rude flat-bottomed boats), and the unwieldy ox-carts or mules with their packs toiled their sluggish course to or from the interior provinces, bringing their scant produce or taking up manufactured goods, which paid full duties to Buenos Ayres, and again to the several provinces.

The population, utterly prostrate as they were, had little heart, though they felt an eager desire, for industrial undertakings. Scarcely any buildings were erected in town or country, while many fell into dilapidation; and those who were really wealthy in their large estates and number of live stock lived retired in the plainest, if not the coarsest, manner. Of education there was next to none.

In the chief city of the Republic (Buenos Ayres) there was scarcely a conveyance to be had (I write of twenty or twenty-five years ago) other than some dozen rumbling old 'galeras,' oblong square boxes swung on four wheels (much like a hammock) by raw-hide 'springs'—i.e. ropes—and drawn by horses yoked to a pole by raw-

hide thongs attached to a large ring fixed to the broad belt or girth which secures the 'bastos,' a sort of saddle, on which rode grotesque-looking gauchos. These conveyances pitched amid the deep ruts and mud-holes as a cock-boat pitches in a heavy breaking sea. Only a few streets were paved wretchedly for a short distance round about the principal square; the unpaved streets (seven-eighths of the street surface) and the approaches to the city were, in the winter, mere water-courses, alternating at every few yards with cesspools, through which it was scarcely possible (often for weeks together utterly impossible) to pass with horse-galera or ox-cart.

Land and stock stood at its lowest. Men feared to purchase and many were eager to sell: they were afraid of owning property lest it should be confiscated or robbed from them.

Some of the best lands in the province of Buenos Ayres were bought and sold at mere nominal figures; 40,000\$ or 60,000\$ m./c.—about 350*l.* or 352*l.*—were the current prices for a square league of land, and even shortly after the fall of Rosas the very best of lands were purchased for 80,000\$ = 700*l.* Cattle as they ran, 25\$ or 30\$ = 3*s.* 6*d.* or 4*s.* 2*d.*, and for slaughter 40\$ or 50\$. Sheep, 4\$, 6\$, and 8\$, according to class = 7*d.* or 14*d.* each.

By continual issues of irredeemable paper—a measure to which the Dictator, to the infinite prejudice of the country, resorted whenever he needed funds, the country under his government being absolutely without credit—the paper currency was depreciated to  $\frac{1}{30}$  and  $\frac{1}{35}$  part of its nominal value. There was scarcely any gold or silver coin in circulation, where before there had been abundance. The massive services of silver, which were at one time common in almost every house, were beaten into gold, and exported.

Few natives, out of the immediate circle of Rosas, ventured to make any improvement on their estates, and they were as slow to introduce the sheep industry on them as they were to improve their sheep stock when they had it. A universal feeling of mistrust pervaded all. They knew not when every 'peon' on their establishments might be carried off for military service, or what contributions, exactions, or confiscations might be looked for. The protection which their 'treaties' secured to foreigners placed them under these circumstances at an advantage over the natives, inasmuch as the former were absolutely exempt from military service and from forced contributions, horses excepted, which were considered articles of war; and any injury to their properties, or the taking of their cattle in intestinal warfare, constituted claims for compensation under the existing treaties.

Induced by the low price of land and the greater security which they enjoyed, foreigners, more especially the British, purchased largely of the lands offered for sale, and devoted themselves to the sheep industry and the improvement of the almost valueless native or Creole sheep. Several large establishments were formed expressly for their improvement by crossing with Merino rams. The most important of these was the establishment of Messrs. Sheridan, Harratt, Hannah, Thwaites, &c. Very many others followed in their wake, including several native estancieros, who gradually drifted into the current, taking from these more advanced establishments the cross-bred stock.\* Owing to the depressing influence of the Dictatorship and the backward state of the country generally, the sheep stock remained at a lower level, both

\* The progress and condition of this industry are explained in another part of this work.

as to quality and value, than would have been the case under brighter circumstances. The natural increase was, however, not checked: there was superabundance of room with excellent pasture, and this class of stock ran comparatively little or no risk from predatory inroads in troubled times, as they were not easy to drive and were of little value as booty to the chiefs or as provision for the men of the cavalry levies which constituted the military force of the country. A few hundred ox or cow hides were at all times a tempting bait, whereas sheepskins were troublesome, and in those days of little, or indeed no value, except at that period of the year when they were in wool.

When Rosas fell, large numbers of foreigners, principally Irish immigrants, were already engaged in this pastoral industry on the estancias both of foreigners and natives. They were especially desirable as shepherds, inasmuch as they could not be taken for military service, besides taking 'more kindly' to the occupation than the more roving habits of the gaucho admitted of. They were, moreover, particularly sought after by the native estancieros as 'medianeros' (on halves), as the sheep, in which they, as British subjects, thus became interested as partners, came more or less under the protective action of the treaty with Great Britain.

The fall of Rosas readmitted into Buenos Ayres the political exiles, men of intellect and education, who had been obliged to fly from their country during the Dictatorship. During their exile they had come in contact with a more advanced civilisation, and learned in adversity to appreciate constitutional order and industrial development. Henceforth they exercised a marked influence in forming and modifying public opinion.

It would be too much to say that the majority even of

these men understood clearly the application of the principles of political progress and economic science; but there were some who did, and most of these had experienced the benefits of their working, and speaking thus of the wonderful things they had seen, they left on the minds of others the impressions which they had received themselves when dwelling among men who had been born to the knowledge and habit of material progress and constitutional freedom. In this way they predisposed large numbers of their countrymen to defer to, and to a certain extent take tone from, the intelligent portion of the foreign residents whose interests had been engrafted into those of the country; and they also aided to make more widely known the value of the practical lessons which the merely industrial settlers were working out.

It might perhaps be too much to say that all classes were disposed to acknowledge the value of the influences to which they were subjected. Human nature is substantially the same everywhere, though guided more or less by circumstances and opportunities; but generally it is enough if the knowledge acquired is brought to bear with effect. At the same time, it is only just to say that probably in no country have foreigners been more esteemed; nay, under the advantages of security and exemption which they enjoyed over the natives in the periods of trouble, it is remarkable that there was not a very much stronger feeling of jealousy. Causes creditable to both natives and foreigners tended to prevent the growth of such prejudices,—on the one side, the good sense of the people of the country, who saw that foreigners were fostering and improving their industries and were almost exclusively the parties who would or could purchase those things or properties which they wished to sell; on the

other, the sympathy of foreigners with the people in their troubles and under their oppressions, and even their readiness to protect and shelter them to the best of their ability, as well as to preserve their properties.\* These interweavings of mutual interests, conveniences, and sympathies never fail to bring about a social modification. But foreigners have exercised a direct material influence on the conditions and destinies of these countries in addition to the powerful though less direct influence of industry.

During the great struggle in the Banda Oriental, when the dictator Rosas proposed to crush the party of progress in its last refuge, the foreign element came into play with marked effect. A very large foreign population existed in Monte Video at the time of the siege, and it was mainly through its instrumentality that the city held her own. The pecuniary means were largely supplied by and through the resident foreign capitalists, and as a consequence the bulk of the state properties passed into their hands, together with private estate lands and other properties of immense extent and value. Nine years of military occupation, and the siege of the city, had driven numbers of its people to sell their possessions: nay more, the force with which the city of Monte Video directly maintained her position was foreign. The defenders of the city were chiefly volunteer corps of Italians under Garibaldi, French, Spaniards, Basques, and others, who followed their avocations when not on duty—which fell in turns to the different corps—and received their rations for the service rendered. The frugal and industrial habits of these men enabled them to live when the native city and suburban population, untrained to persistent industry

\* Simulated sales were largely made to foreigners with this object.

and devoid of the resources incidental to habits of frugality, could not subsist. The native population of the city and its neighbourhood was, as it were, worn out, and the result is now seen in the industries, as well as in the large extent of land or other properties, which remain in the hands of foreigners, and give to that state (Banda Oriental) a surprising elasticity of recuperative energy under conditions of singular political disadvantage. It has been, as we have stated, the centre of intrigues for neighbouring states and the scene of continual intestinal broil, into which the native population is on all occasions pressed. Foreigners not being personally interfered with, nor sensibly impeded in their avocations, are enabled to do more than maintain the industrial status of the country ; hence its products and its trade and substantial wealth continually increase. Moreover, so relatively small is the proportion of those men who at the present time are available for intestinal struggles, that the effects of irregular warfare are to a certain extent neutralised ; and the time is not distant when, from the same fact, such warfare will be impossible. Indeed, it has been already much modified in character by the large foreign interests and other influences brought to bear upon it. Supplies taken from the estates of foreigners must be paid for, and the victorious party has to pay for all.

In Buenos Ayres the direct material intervention of foreigners in the politics of the country has been merely nominal ; but these economic and industrial interests and influences are of longer standing, and are more deeply rooted than in any other part of the Confederation. These interests are of greater value than any in the Banda Oriental. The former have been developed by fusion ; the latter are rather the result of absorption.

About a year after the breaking up of the siege of

Buenos Ayres, under Lagos and Urquiza, that province adopted a popular and constitutional form of government.

The federal system of government of the thirteen provinces of the Argentine Confederation, which preceded that adopted by Buenos Ayres\* during her period of isolation, had to struggle with disadvantages and difficulties, as wanting a focus, as being deficient in elements moral and material, and as being at issue with its right arm and proper head. It was not until after the battle of Pavon, when the national government of the fourteen confederate provinces took its seat in Buenos Ayres, that it assumed its true position of weight and importance and was enabled gradually to acquire and assert the attributes of national authority, and to inspire confidence by constitutional means and a conciliatory policy. In a certain broad sense, this result may be traced to the fact that its seat lay in a centre of resources where the population was dense, and where it came into contact with the influences of capital, commerce, industry, civilisation, and intelligence, and worked under the steady influence of a public opinion which had grown up from manifold interests.

The form of government of the Argentine Confederation is modelled on that of the United States; but its details and their application necessarily need to be adjusted to meet the special conditions which these countries and their population present, and under which uniformity of working is hardly practicable. Its Executive consists of a President (elected by Congress—i.e., by electors popularly called), whose term of office is six years; ministers of the interior, foreign relations, finance, war and marine,

\* The constitution of the Confederation was sanctioned on July 9, 1853; that of the Province of Buenos Ayres on May 23, 1854.

and 'culto' (religion, education, &c.); and a Congress of deputies elected by the several provinces, whose number is determined by the importance of the populations which they represent.

The functions of Congress and the Executive are defined in the constitution, which guarantees the rights of the people and specifies the relation of the Provincial to the National governments, and their mutual obligations. These are fairly carried out by the National Government.

The Provincial Government of Buenos Ayres consists of a governor and ministers of Government and finance, a representative chamber (elected by popular vote), and a senate; and the details of government and parliamentary proceedings are worked out constitutionally and with dignity. This cannot, in all cases, be said of the other provincial governments, which are constitutional in nothing but form, and scarcely even in this. They are deficient in the elements of constitutional rule, and their distance and inaccessibility place them beyond the reach of the social and industrial modifying influences which are working such beneficial changes in the more advanced littoral provinces. Hence the National Government has encountered great difficulties in maintaining constitutional integrity, and repressing the revolutionary tendencies rife in many of their governments. Local and provincial revolutions accompanied by violence and bloodshed, and occasionally tainted by dark crimes, have hitherto been almost their normal state.

The effects of constitutional order, on a fair basis, are well defined in the more adjacent littoral provinces; and the working of the principle has not been checked in any material degree since its adoption.

Liberated from the incubus of the Dictatorship, and

confiding in the perpetuity of the new order, men awoke as from a cataleptic swoon, and entered with enthusiasm into all questions of material progress—the progress achieved strengthening in its turn the principle to which it owed its origin. The system of municipalities was adopted in both town and country, the members being duly elected by popular vote from among the district residents, foreign and native; municipal schools were established, with a free press alike for foreigners as for natives. Moles and wharfs shot up, and a large extent of street surface was paved in the city of Buenos Ayres; the streets were lighted with gas; carriages, cabs, and omnibuses crowded them; houses—almost palaces—sprang up in every block; and the city increased rapidly in extent and population—the latter doubling itself in a single decade. Railways, canals, and telegraphs were projected, and are now in operation; steamers, in quick succession, coursed the rivers and connected every town of any importance with the commercial centres of Buenos Ayres and Montevideo; rural industries were prosecuted with eagerness, if with little skill, and men of all nationalities began to root themselves to the soil.

Foremost among the actors in industrial undertakings were, as a matter of course, the foreign residents, and foreign capitalists cooperating from without.

The purchases of lands by foreigners were very large indeed, and the multiplication of sheep was as rapid as the increase of commerce: value so rose as to overshoot equilibrium. Near the cities, the enclosure of lands for agricultural and horticultural purposes, scarcely before known, went on year by year to such an extent that to-day, around the city of Buenos Ayres, all the lands over a radius of 15 to 20 miles are subdivided and enclosed as farms or market-gardens, cultivated by Italians,

Basques, French, British, and Germans. Mechanical trades kept pace with, and contributed to, the general progress, these being, as a matter of course, almost monopolised by foreigners, as it was only from the immigrant ranks that the demand for skilled or other labour could be even partially supplied.

The comparatively useless native population of the suburbs, who lived by growing pumpkins and watermelons and exchanging them for the few pence that sufficed to purchase beef at a farthing to a halfpenny a pound, or doing odd jobs, to obtain the luxuries of maté and sugar (the work of one or two days sufficing to procure enough for a week's feasting), gradually gave place to immigrants of industrial habits, to vegetable and fruit gardeners, fodder growers, artisans, tillers of the soil, flayers, salters, porters, boatmen, and launchmen. The poorer immigrants from older countries bettered their condition, and, in many instances, speedily rose to opulence, while they conferred incalculable benefits on the country of their adoption.

The race of suburban idlers and maté-sucking 'compadres' who preyed upon the 'alredores' (neighbourhood) has literally died out, or appears only by a compromise between industry and idleness, which in their progeny assumes the form of regular industry. There are many, however, who will not be tamed down, and these are driven by the force of their instincts to seek more congenial haunts outside the industrial circle, or, being taken for military service, disappear altogether.

Farther out again, a similar process goes on, affecting distinct classes. One of these is the *soi-disant* husbandman, who, living in a tumble-down mud-hut (its perfect ventilation through sides, gables, and roof being its distinguishing feature) on a tract of unfenced land, in

many if not most instances his own property, possesses a pair of lean oxen and a primitive plough—much like those represented in drawings as the old Roman implement—scratching the surface of a few acres of ground and putting in maize or wheat, reaps a scanty crop of grain and an abundant harvest of weeds. The rest of the land affords pasturage to one or two lean cows, a number of ‘man-carones,’ or lame sore-backed horses, and some scabby Creole sheep. Doing little work badly some days, idling on others, he seeks to get just enough to enable him to vegetate—i.e. a junk of beef or a lanky sheep killed—with the luxuries of yerba maté and paper cigars. The old man will not sell nor let the land, and such tracts may still be seen, neglected and unproductive among the fenced farms of the ‘innovators.’ He dies, and his heirs—sons and daughters, if he had any, or, in default of such, his nephews and nieces, come in for the property, and share and share alike. Here as elsewhere harpies of lawyers, land surveyors, and ‘albaceas’ (executors) not unfrequently make something of a job out of the measurement and repartition of the land, or by drawing up titles and raising questions of limits with neighbours, or of rights of inheritance which entail long-drawn lawsuits, and take no inconsiderable slices out of the property. The repartition effected, some of the inheritors sell and take their departure; others hold on to their portions, let them, or in some rare instances till them, and thus enter the ranks of the industrial class.

The ‘gaucho’ proper is a class—a race it may be called—by itself, and, like the Indian, is but very slowly modified. Within a radius of very many leagues extending from the chief cities of the Platine Republic, his occupation is now gone. Tillage and sheep farming have driven him out, and he is retiring across the same ground over

which the Indian has retired before him. There is a certain poetry or picturesqueness about this 'race' as, in a different way, about the Moors of Castile, which almost makes one regret to see pass away a fellow who will sleep on his saddle at your door-sill, like a faithful dog ; who endures cold or heat, hunger and thirst, without uttering a complaint ; who rides five hundred miles on end at your bidding, sleeping in the open air, providing his food with his lasso, and disposing of it with the simple appliances of his knife, flint and steel, with bones or dried weeds as fuel ; who would take the cows, neats, or horses of any but his 'patron' ; who perhaps might knock a man off his horse and cut his throat for his spurs and stirrups, if these took his fancy, but who, in his patron's service, could with perfect confidence be trusted with hundreds of pounds, to go as many leagues and purchase and bring in cattle ; who moves with grace, speaks with courtesy, asks after all the family in detail, sends his compliments to the 'patrona,' or compliments her if he has the opportunity ; who marks on the ground the different brands of horses or cattle of numerous owners, and tracks strayed or stolen animals over scores of leagues—such is my friend the gaucho. Yet even some of these come within the circle of civilisation and industry, and become patient tenders of flocks. Still, as a class, the gaucho proper must pass away under modifying influences and altered conditions ; and where these do not reach, the race, from that lack of domesticity which is fatal to propagation, must literally die out. This lack is the paramount cause which makes the 'paisano' (peasant) of these countries what he is, a non-industrial, non-productive being, doomed to extinction. I make an appeal in behalf of 'my friend the gaucho' and the paisanos generally. Why should so much excellent material be cast adrift on the plains, homeless and hunted ?

Victims of trimestrial levies for irregular warfare, they have no incentives to steady work and cannot, in fact, *root* themselves. At all times and by all parties they are hunted out, to fight or run away, disband or be disbanded, but to be hunted again ; with none to share a home, with no home to be shared, driven to roam, they have no belongings and they do not propagate. What would it avail them to form homes or create surroundings so long as a press-gang incessantly dogs them, as they crouch and hide like hunted deer among dense scrub or thistle beds ? Give them security for their present liberty, and encouragement to settle down, backed if needs be by penal employment on public works for vagrancy, and a few years will suffice to bring them under domestic influences and graft industrial habits which will bear rich fruit in due season. But the law of levies for military service must first be abrogated and a regular army, fairly paid and well clothed, must be maintained—a lesson which, as I have shown in the previous paper, the Paraguayan war should have taught them. Foreigners are not so hunted, cannot be press-ganged, are free to work and need to work, and at once they root themselves to the soil. Why are the sons of the soil proscribed ? Let these too, under the influence of example and the compulsory inducement of a parish law of residence, shake off inveterate habits and have a chance of becoming an element of industrial progress in the land of their birth.

It may be that some men of influence and might in the land may cast their eyes on these few lines from the pen of a foreigner, and become active champions for the just rights of the gaucho.

In the earlier period of immigration, when the foreign element was at the minimum as compared with the native, the influence of the former was slight ; indeed, foreign

settlers and their children, subjected to the strongest modifying influence, caught, in sensible degree, the prevailing infection, and frequently acquired the most undesirable habits with the greatest facility ; and it is only in comparatively recent years, and in the presence of a rapidly increasing immigrant population, that European influence has asserted itself as an irresistible modifying force now extending itself with giant strides.

In the higher and middle classes of the natives, this modification is perhaps more marked than in the lower. There have been more opportunities and more influences operating materially and intellectually. Naturally polished, elegant, intelligent, and fluent to eloquence, many have travelled under compulsion as exiles, and, since the development of steam communication with Europe, for pleasure and improvement ; they have mingled much with foreign residents, polished, intellectual, and (more especially) practical, and there have been many intermarriages. In commerce, industrial undertakings, and all business transactions there has been continuous and close contact. On political and politico-economic questions there has been a free interchange of views. Very many of the natives speak and read both English and French, and the standard literature of Europe and America—as well as light literature—fills their libraries, is extensively read and by many eagerly and profitably studied.

There is unquestionably a great charm in the polished circles of the native society. The courteous welcome accorded to the intelligent foreigner, and the refined deference with which they meet the expression of practical views, redound to the credit of their good sense and kindly feeling ; while their appreciation of the benefits accruing to their country from immigrant settlers, and more especially from the educated and intellectual por-

tion of them, testifies to their discernment. They are particularly anxious that practical men among the resident foreigners should accept seats on their municipal boards, or assist at consultations and discussions on questions of political and social economy. The wish to work out an adequate reformation is widely felt among the more intelligent of the upper class, who see clearly that the position of a nation in which a very large portion of the population and possessors of property takes comparatively little direct part in the working of its social and economic system is abnormal, and that a new country, mainly dependent on colonists for the development of its resources, needs the direct cooperation of all educated and thinking men. There are resisting elements still strong, both among natives and foreigners, and certain stumbling-blocks, which a little time and another step or two in political development and social modification will surmount—at least in the great centres of material progress.

Two periods in the life of these countries are distinguished by the assertion of the principle of political and industrial progress—viz. the present and that of Revadavia—but differing both in the character of the influences in operation and in their results. Revadavia had lived in France when the French Socialist school was still at its zenith, and when the ideas born of the French Revolution, modified by the Empire and the Restoration, held feverish sway in Europe. The scheme of development which he propounded to his country was naturally somewhat tainted with these influences, and at best speculative and exaggerated. It broke down, and its failure contributed perhaps in no slight degree to rouse the spirit of contention which led to struggles, arrested at length only by the reassertion of the principles of progress under riper

circumstances. The present political and social systems have not sprung, meteor-like, from the luminous brain of an individual, but are the result of influences emanating from new conditions and the circumstances and relations which follow the course of accomplished facts—the substitution of the influences of an essentially practical age for the French ideal of the Revadavia period.

The progress already made and the modifications already effected in the Province of Buenos Ayres since the fall of Rosas are so great as to place it in an exceptional position in the Argentine Confederation, and mark it out as the central power from which all civilising influences radiate. The population of its chief city has increased from 70,000 or 80,000 to 200,000 ; its commerce has been quadrupled ; an immense foreign capital is invested in industrial undertakings, lands, stock, and buildings, and employed in commercial, banking, and industrial pursuits, and an exceedingly large foreign population is rooted to the soil. The native population, or certain classes of it, have fairly entered the lists of commercial and industrial development, and have immense stakes in it ; and the interests of foreigners and natives are amalgamated to such an extent as to create a paramount mutual interest in the maintenance of order and constitutional government. Railways connect the interior of the province with the capital. A diligence service is established between the outlying districts with the termini and stations along the lines of rail, and a fleet of steam-vessels puts the various river ports in daily communication with the great emporium of trade. Ocean steamers, arriving and departing every two or three days, maintain a close and continuous intercourse with the older world, making its well-tried systems familiar to all classes of the people, and conveying to them a continuous

stream of capital, and practical men to work with it. The combination of influences and mutually dependent interests thus created constitute the strongest guarantees for order and stability, while they furnish the means of maintaining them. It is scarcely possible now that the confusion and disorder which have characterised South American republics can recur in Buenos Ayres. Here therefore we have a centre from which all the influences concentrated in it must inevitably radiate. We may add with truth that they are being so extended already. Along with many good institutions there are in Buenos Ayres some which deserve but little praise, and many politico-economic mistakes, inherited from the past or incidental to the earlier phases of national life, call for correction. Rapid growth has also engendered many wants. To keep pace with these, legislation should be flexible and very able and far-sighted. These defects and wants constitute resisting elements in the path of progress. One of the most prominent of these defects is seen in the monetary system and the non-redemptionable paper currency, which, being of conventional value only, has sustained excessive depreciation\* and has ever been subject to great fluctuations. This system, with certain financial monopolies, restricts credit, and, from the uncertainties which it creates and the consequent want of confidence, checks or represses all important industrial undertakings, and especially discourages improvement in the rural districts. The natural consequence is that the balance of trade stands to the extent of 25 per cent. against the country. It renders difficult the arrangement of terms in commercial transactions, and gives an exceedingly speculative character to all financial and

\* It stands at present at  $\frac{1}{25}$ th of its original nominal value.

commercial operations. This non-representative currency has been maintained and used as a political engine doubtless with great effect in the hands of an arbitrary government or dictatorship, and is still clung to by many who see in it a powerful instrument, without perceiving that its working must be simply evil.

The more advanced political economists, fully aware of the evil, are loyally striving to break it down; but the interests of parties clinging more or less to the past and tainted with its prejudices have hitherto been too strong for them. The ruling powers are however pledged to put an end to the mischief, and in the meantime an expedient has been adopted which may serve to restrain fluctuations of value in the paper money.

The National Government of the Confederation, it is understood, see the necessity for a uniform monetary system throughout the republic, with corresponding institutions on a sound financial basis. Such a measure, if realised, would at once establish the national credit and give the greatest possible impulse to material progress.

The working of common and criminal law is defective, tedious, and uncertain; and the absence of an adequate organisation renders the administration of the rural code especially unsatisfactory. The offences of trespass and minor depredation are innumerable, and the difficulty of obtaining redress is so great that many prefer to suffer rather than lose time on a wretchedly precarious venture. The deficiency, however, is in the working organisation, not in the laws. These are for the most part good, and there is every disposition to amend them where they

are defective. Establishing a good working organisation is the social condition of the social con-

worth of important

interests and consequent new requirements has rendered the existing machinery practically useless, and altogether baffles officials who cannot advance beyond their old routine. The Jueces de Paz (justices of the peace) Alcaldes, Teniente Alcaldes, &c. &c., are all unpaid, and, with the exception of the justices of the peace, are taken from a class devoid of education and reared to habits in which respect for property and order have no part, and of which we might without much exaggeration say that it has habitually lived by infraction of the rights of property. In many 'departments,' too, the justices of the peace are incompetent, and have not unfrequently been named to the post for political purposes—a most dangerous practice, as any combination of political intrigue with the administration of justice must be prejudicial to the latter, and hence demoralizing.

Habitual dishonesty and theft, the indulgence with which even crime is viewed—as the first chapter of this work has shown—creates a serious difficulty in administering not only the rural code and common law, but the criminal law itself. Criminals but too frequently escape all punishment, both from this cause and from the supineness of the subordinate officials; even when they have been brought to justice, the uncertainty of evidence, rising from deficient moral perception on the part of the people, robs the judges of the supreme court (men of high attainments and refined feeling) of the power which justifies the execution of the law. Hence sentence is often deferred indefinitely in cases where there is a moral certainty of guilt, and not unfrequently the criminal is discharged, or, being sent to frontier service with or without sentence, deserts, to commit fresh crimes under the assurance that he can do so with impunity.

A justiciary system so inadequate must necessarily be

abandoned. The ruling powers are fully alive to its faultiness and to the necessity of reform, but they do not see clearly the way to a remedy. Probably this may be found in the institution of a bench (or 'jury') of magistrates, appointed by the Executive on presentation by the departments—a professional clerk of the court to sit under the presidency of the chief Juez de Paz; in the substitution of a staff of paid officials and country police for the 'alcaldes' and 'tenientes alcaldes' as at present existing; and in the introduction of hearings in a formally conducted open court. The moral influence of such an administration would be very considerable; it would inspire respect and satisfy the public as to the impartiality of decisions, in which very few believe under the present system, there being too many private interests and influences which bias, or may be supposed to bias, an individual exercising a more or less arbitrary local authority. The executive administration would also be very much more efficient. No 'alcalde' or 'teniente alcalde' is inclined to expose himself to the odium of neighbours by exercising the executive functions of the law, nor to run any personal risk in apprehending offenders or criminals, as, unpaid and often needy officials, they are much more likely to make use of men in trouble—'desgraciados'—and habitual depredators, in order to put a few dollars in their pockets as little goodwill payments for their connivance, or even to give warning to offenders (probably their 'compadres' or associates), than to perform the duty of constables at personal inconvenience.

The foregoing pages have perhaps sufficiently explained the anomalous condition of a country in which a very large proportion of the population consists of immigrant settlers, who represent an equally large proportion of its

wealth, and on whom it is mainly dependent for industrial development, while yet this portion of the population takes little or no direct part in the working out of social order.

The immigrant settlers are, it is obvious, especially interested in the maintenance of order. Respect of property is with them a pervading principle, and the more educated among them are familiar with the working of organisations directed to this end ; on the other hand, it cannot be denied that the native rural population of this country has but a vague conception of the principle, or treats it with contempt. Under these circumstances, the exclusion of these settlers from any direct share in the government is an incalculable loss to the body politic. It can scarcely be doubted, therefore, that the country would derive very great benefits by using the large foreign element for local administrative purposes of capacity, as for service on a bench (or jury), and other justiciary services of magistrates, in those departments at least where they are numerous and represent important interests. The settlers, on the other hand, should feel themselves mostly bound to cooperate for the public weal. A great step towards that amalgamation, which is so necessary under the circumstances of these countries, would be gained by such a course.

The settlement or rooting of immigrants and the march of industrial development are gradually extending from Buenos Ayres and the republic of the Uruguay to the adjacent provinces and to the immense prairies of the western and southern frontiers of Buenos Ayres, under the influence, as I have already said, of vastly improved and improving facilities for locomotion.

The daily steam service between the river ports of the Rio Uruguay and the commercial and industrial centres

(Monte Video and Buenos Ayres) has brought into prominent notice, and led to the purchase and stocking, or partial stocking, of very large tracts of the choicest lands on both banks of that magnificent river; and this by a class of men generally intelligent and enterprising, whose establishments exhibit in many instances a working system in advance of not a few far older settlements in different parts of the Platine States.

On the Banda Oriental side of the river, the districts of Mercedes Hegueritas, Fray Brutos, Paisandu, &c., also of Colonia (on the La Plata coast), thence inland to the Rios Negro, Guanjaba, &c., are occupied by the thriving estancias of educated foreigners, to such an extent that land in a condition for stocking with sheep is not very easily obtained there, and values have risen considerably. On the Argentine bank of the river (Uruguay) the departments of Gualeguaychu, Gualeguay, and others of Entre Rios, are in like manner occupied over a very large surface, purchased or rented by intelligent and enterprising foreigners (and chiefly British). This province, owing to its political condition, has only recently been favoured by immigrant settlers, and even yet the consideration of the possible events that may arise out of its strategical position in relation to neighbouring states\* deters capitalist settlers from penetrating much beyond the riverine districts. The definite solution of the Brazilian and Argentine difficulty with Paraguay will dissipate much of the mist of doubt; meanwhile the industrial element has secured a fair footing, and its benefits are recognised in the districts where it exists. The present ruler, and largest landed proprietor of the province, is very desirous of attracting foreigners,

\* See the previous treatise.

and extends marked protection to those who are already settled there.

It must not, however, be forgotten that the chieftain rule which has existed, and the somewhat arbitrary disposal of lands to gaucho chiefs under a sort of military squatter's tenure, render a careful investigation of titles and the assurance of untrammelled possession indispensable conditions of purchase.

When the territorial limits have been definitely settled between the belligerents in the Paraguayan war, the rich lands of the Missiones territory on the River Uruguay will be open to enterprise and capital.

Steam service navigation on the River Parana has wrought a most marked and important change in the province of Santa Fé, and this beneficent change has been still further advanced since the 'floating' of the project of the Central Argentine Railway and the commencement of the works at its riverine terminus, the town of Rosario, in that province.

Not many years ago, the 'Santa Fecinos' were little better than a band of plunderers, resembling most nearly the Indians, with whom their raids were not unfrequently combined; but at the present time the humanising influences of steam, commerce, and industry, backed by the liberal policy of the government, which gives all possible support and encouragement to enterprise and affords every facility for the acquisition of lands, have fairly done their work.

The governor, Señor Oroño, a man of large and liberal mind, embraces every opportunity of furthering the material interests of his province. Very extensive purchases of state and other lands have been made in the southern portion of the province, which is now studded with the sheep-farms of intelligent settlers from the educated classes of Great Britain and other countries.

Exploration parties, set on foot by a body of energetic gentlemen, and encouraged by Governor Oroño, have been pushed into the Gran Chaco, and have there established a North American colony, the right class of men, settled on the richest possible lands on the banks of the Parana. The province of Santa Fé must inevitably be the high road for the transmission of commerce and industry, with all their civilising influences, to the upper provinces of the Argentine Republic. The enlightened portion of her population eagerly accepted the mission, while its condition was almost that of infancy. Her actual position signally confirms the axiom, that pacific and civilising influences depend for their force on the means of locomotion ; and of these Santa Fé must be the second nerve centre.

Many patriotic men of cultivated minds, anxious for an equal distribution of capital and immigrants over the country, and recognising this as the paramount want of the interior provinces, endowed as they are with great mineral wealth and a marvellous inherent capacity for varied production, desire to extend these benefits at once to these regions ; but this cannot be. Capital and industry will not, and cannot to any extent, isolate themselves. A continuous course must be opened to them, to let in the flood, with locks and flood-gates by the way, to hold on to that which is brought up with a flowing tide, lest in the ebb they be left dry. Hence, until the 'course is cut,' or, in other words, until railways stretch out into the interior, no foreign industrial cooperation can be looked for. The acknowledgment of this fact will furnish the best assurance that the national energies will be directed to the extension of the iron ways of peace and progress.

Following the example of Santa Fé, Cordova has offered her lands for sale, and, on the course of the line of rail

now being pushed forward for Cordova city, considerable tracts of campo have recently been sold, and some lands near to the southern boundary of that province have been partially settled in anticipation of the conditions which would have afforded the needful security. This precipitancy led to a catastrophe at Frayle Muerto a few months ago, an English gentleman and a couple of peons losing their lives at the hands of the Indians in whose tracks that district lay.

The Central Argentine Railway will have its inland terminus in the city of Cordova, the university city of the Spanish vice-royalty, where, from this fact, a certain pedantry and conservatism prevails among the population. This the railway, infusing new and more vigorous blood, will break down. When the line is completed, Cordova will become another great nerve centre of progress. Her mountain slopes and hills will furnish localities admirably adapted for sheep and Angora goat industries, her valleys and plains for cattle, &c., while her marbles, lime, and metals will be transported at comparatively little cost to the convenient port of Rosario. This central station of Cordova will bring the surrounding provinces within view of the rising tide of material progress, and the knowledge of its advantages will be followed by a share in them. Many of the varied products of their wonderfully fertile soils and of their rich mines will be met half-way by the railway and transported at a cost so reduced as to enable them to be conveyed profitably to the markets of Rosario, Buenos Ayres, and Monte Video. In the sequel, enterprise and capital will creep up to them, and the National Constitutional rule will at length exercise its legitimate and sobering influence.

We now return to Buenos Ayres, whence the indulgent reader has accompanied the writer, coursing by steamer

oceanwise, and up the grand river Uruguay and the magnificent Parana (which, the war over, will be open again to Paraguay, and thence to the western boundary of the Brazilian Empire), landing at Rosario in Santa Fé, and thence, by train, penetrating to the central station of the Upper Provinces of the Republic. Arrived at Buenos Ayres, we take our seats in the train of the Western Railway. The engine whistles as it starts to run a hundred miles through a continuous line of closely-stocked sheep farms, to the great grain-producing district of Chivilcoy. There it introduces the immigrant to magnificent and comparatively virgin prairies, stretching to the frontier, with virgin campos, limitless beyond it, and giving easy access to the Chacabuco, Salta, Junin, Nueve de Julio, Salado, Bragado, and other districts, to which the sheep industry is now extending, and the lands of which, chiefly 'state' property, can be purchased at the moderate figures of 1,250*l.* to 2,500*l.*—lands of the richest alluvial soil, under a climate admirably suited to the Merino variety of sheep, and for cattle-breeding and grain-growing.

Another whistle announces the starting of the train on the Great Southern Railway, which runs nearly a hundred miles through the southern sheep-farming districts, the nurseries of this great industry, to the town of Chascomus, beyond and around which, for a like distance, this industry predominates. Beyond this again are the superb lands, comparatively virgin, of the Sierras (a line of hills), Tapelqué, Tandil, Las Flores, Azul, Laguna de los Padres, &c., admirably adapted in climate, as in pasture, for the English varieties of long and medium woolled sheep and British breeds of cattle. These lands can be purchased at prices varying from 1,500*l.* to 3,000*l.*

The great fields for industry and capital in the provinces

of Buenos Ayres are not exhausted in this enumeration. Coasting southwards by craft steamers, there is the district of Bahia Blanca, excellently fitted for long-woolled sheep, cattle, and grain growing, and needing only a larger immigration than has reached them, and a somewhat better organised frontier service, to render them highly desirable. Still farther south there are the exceedingly rich pastures and fertile lands on the banks of the Rio Negro de Patagones, reaching to the great salt lake deposits, to which a tramway or railway is designed for the purpose of bringing to the port of the river salt almost equal to the best cadis. On these southern lands, which are all clothed with the choicest grasses, there are already considerable settlements, and it cannot be doubted that these regions are destined to be the great pasture grounds of the long-woolled varieties of sheep and improved breeds of horned cattle, and the granaries of South America.

---

I proposed in these pages to describe faithfully—though briefly—the conditions of these countries, and I have conscientiously performed the task to the best of my ability—neither detracting from nor exaggerating anything. The task might easily have fallen into the hands of a more practised and able writer, but not to a more truthful expounder of things as they are. To my young friends that may be, I say: Does the picture attract you? It may well do so if you are of sound and courageous heart; if you are 'game' to work; if you have the moral courage and the high resolve to carve your way to competence, and, as becomes men and Christians, to eschew evil habits and idle ways. It is not the country for white-gloved loungers nor fast youths: such

may 'hit or miss'—generally the latter—as they may elsewhere.

Honest toil stains no man's hands—though it will harden his palms and brown his back—so long as he is animated by the right spirit; and if directed by intelligence and persevering energy, it will reap a rich harvest of health and of the world's goods. The lounger only is ignoble, and of necessity fails.

I have loved the sound of the hunting-horn and to ride cheerily to hounds, have loved the bright fireside and the merry dance in the squire's hall or on the yeoman's green, have revelled in the galleries of art and gathered my small crumbs from the vestibules of science and literature, and these things are pleasant to think of in my home in the campo. Now my palms are hard, my summers fifty; the wind whistles and rushes over the plain, the rain pelts piteously, and the thunder rolls; or the scorching sun withers the grass, or it is a gloriously charming morning, as the sun rises through the mist and illuminates the dew-spangled herbage, and I am out with my flocks, or gather up my lambs (and such lambs! is it not a pleasure to see them grow in size and beauty, and watch them as, they gambol and frisk round and through the flock?); or I pare hoofs, 'tally' the shearers, and assist lambing ewes in difficulty; mount a rising stack, sit on a mowing machine, take the stilts of a plough and the reins of half-broken horses, to *show my labourers how to work*, for they are a crude lot, and if the master holds aloof from the roughing, his peons will do the same. If you have the courage, my young friends, if your hearts respond with firm resolve, you may, with all confidence, come along and *work*, and you will not fail, so doing.

---

It was my intention to have embodied statistical data in the pages of this work, but the excellent report of F. Clare Ford, Esq., late H.B.M.'s chargé d'affaires in the River Plate—forming part of the Parliamentary Blue-book—which this gentleman has kindly sent me, renders this superfluous, as I am enabled to give the principal part of his report in the Appendix to this volume.



## APPENDIX.

## ARGENTINE REPUBLIC.

## REPORTS BY MR. FORD, HER MAJESTY'S SECRETARY OF LEGATION.

## REPORT ON THE FINANCIAL CONDITION OF THE ARGENTINE REPUBLIC.

The revenue of the Argentine Republic during the year 1865 amounted to the sum of 1,659,014*l. 5s. 1d.*, or 18 per cent. higher than the preceding year.

The principal source of income is derived from the Custom-house duties; those levied on importations averaging this year 23 per cent., and those on exportations 10 per cent.

The import duties levied during the year 1865 show an increase of 25 per cent., and the export duties 7½ per cent. over those levied in 1864.

Official financial accounts are made up in hard dollars. One hard dollar may be calculated as being equal to four shillings.

The revenue and expenditure of the Argentine Republic during the two years 1864-1865 were as follows:—

Years	Revenue			Expenditure		
	<i>£</i>	<i>s.</i>	<i>d.</i>	<i>£</i>	<i>s.</i>	<i>d.</i>
1864 . . . . .	1,401,065	12	6	1,235,878	13	9
1865 . . . . .	1,659,014	6	1	1,375,235	13	2

The sources from which the revenue during the year 1865

was derived, and the expenditure, as authorised by the budget, are shown in the subjoined table:—

REVENUE.				
		£	s.	d.
Imports . . . . .		1,064,360	9	7
Exports . . . . .		476,185	16	4
Warehouse and wharfage . . . . .		29,591	19	6
Stamps . . . . .		22,416	15	9
Post Office . . . . .		10,232	14	9
Property tax . . . . .		30,388	14	1
Mines . . . . .		280	7	1
Via del Riachuelo . . . . .		2,627	19	1
Miscellaneous . . . . .		22,929	9	2
Total . . . . .		1,659,014	5	4
EXPENDITURE.				
		£	s.	d.
Ministry of Interior . . . . .		175,820	2	2
"    Foreign Affairs . . . . .		14,435	10	10
"    Finance . . . . .		268,243	19	4
"    Justice . . . . .		63,202	5	5
"    War and Marine . . . . .		439,269	13	10
Public Debt . . . . .		424,284	1	7
Total . . . . .		1,375,235	13	2

The following are some of the items of expenditure:—

	£
Salary of his Excellency the President of the Republic . . . . .	3,386
Salary of his Excellency the Vice-President . . . . .	1,505
Salary of five Ministers of State (at 1,317 <i>l.</i> 12 <i>s.</i> each) . . . . .	6,588
Expenses of the National Congress, including the salary of twenty-eight senators (16,261 <i>l.</i> ), and of fifty deputies (28,018 <i>l.</i> ) . . . . .	53,214
Expenses on account of the Diplomatic service, including the salary of three Ministers (4,753 <i>l.</i> ), and three Secretaries (988 <i>l.</i> ) . . . . .	11,226
Salary of the Bishop of Buenos Ayres . . . . .	720
Expenses on account of the Police service . . . . .	22,426
"    Post Office . . . . .	10,523
"    Public Instruction . . . . .	7,032
Subsidies given by the National Government to the Provinces . . . . .	40,000

The debt of the Argentine Republic, both internal and external, amounted at the beginning of October of the present year to the sum of nearly 6,500,000*l.* sterling. It is distributed in the following manner:—

## INTERNAL DEBT.

	17s per oz.	16s per oz.	£ sterling
<b>1. Consolidated Debt in Public Funds of 6 per cent. and 1 per cent. Sinking Fund according to law of November 16, 1863 :</b>			
Original amount emitted . . . . .	11,784,200	11,091,011	2,218,202
Paid off . . . . .	783,200	737,129	147,425
Actual circulation . . . . .	11,001,000	10,353,882	2,070,777
<b>2. Consolidated Debt in Public Funds of 6 per cent. and 2½ per cent. Sinking Fund as per law of October 1, 1860—</b>			
Emitted . . . . .	2,842,000	2,674,823	534,065
Paid off . . . . .	201,000	189,176	37,835
Actual circulation . . . . .	2,641,000	2,485,647	497,130
<b>3. Internal Debt to the Province of Buenos Ayres recognised by the National Government—</b>	Moneda Corriente 25 per £.	Pesos fuertes	
<b>A. Public funds of 6 per cent. created by law of May 5, 1859 —</b>			
Emitted . . . . .	20,000,000	800,000	160,000
Paid off . . . . .	9,095,192	363,808	72,761
Actual circulation . . . . .	10,904,808	436,192	87,239
<b>B. Public Funds created by law of June 8, 1861 . . . . .</b>			
Paid off . . . . .	24,000,000	960,000	192,000
	3,780,000	151,200	30,240
Actual circulation . . . . .	20,220,000	808,800	161,760
<b>c. Public Funds created by law of January 20, 1862 —</b>			
Emitted . . . . .	50,000,000	2,000,000	400,000
Paid off . . . . .	6,500,000	260,000	52,000
Actual circulation . . . . .	43,500,000	1,740,000	348,000
<b>4. Recognised debt to foreign subjects . . . . .</b>	Dollars c.		
Paid off . . . . .	—	230,540 25	46,108
	—	136,279 49	27,256
Actual debt . . . . .	—	94,260 76	18,852

## FOREIGN DEBT.

	Moneda Corriente 25¢ per oz.	£ sterling	£ sterling
1. English loan to the Province of Buenos Ayres; original stock 6 per cent. Paid to December 1865 . . . . .	—	—	1,000,000 71,100
In circulation . . . . .	—	—	928,900
Deferred stock, 3 per cent . . . . .	—	1,641,000	
Paid to December 1865 . . . . .	—	439,300	
In circulation . . . . .	—	—	1,201,700
Together . . . . .	—	—	2,130,600
2. Brazilian debt—		Dollars c.	
Capital and interest . . . . .	—	1,321,130 0	264,226
Paid off . . . . .	—	178,425 0	35,685
Balance . . . . .	—	1,142,705 0	228,541
3. Debt contracted by Minister Riestra, London—			
Remitted from London . . . . .	—	2,602,675 95	520,535 4
4. Foreign debt contracted by the Government of Parana in 1858—	17¢ per oz.		
Emitted . . . . .	2,231,290	2,758,861 0	551,772
Paid off . . . . .	629,333	592,814 0	118,463
In circulation . . . . .	2,301,957	2,166,547 0	433,309

## RECAPITULATION.

	£	¢
1. Public Funds of 17 dollars per doubloon . . . . .	2,567,907	0
2. Public Funds of paper currency of Buenos Ayres . . . . .	596,998	0
3. Debt to foreign subjects . . . . .	18,852	0
4. English loan to Province of Buenos Ayres, recognised by National Government . . . . .	2,130,600	0
5. Debt to Brazil . . . . .	228,541	0
6. Debt contracted by Señor Riestra . . . . .	520,535	4
7. Foreign debt contracted by Parana Government 1858, 17 dollars per doubloon . . . . .	433,309	0
Total . . . . .	6,496,742	4

The statement above made of the revenue of the Argentine Republic refers especially to that of the National or General Government of the republic, which is called upon to defray the

expenses of the army and navy, of the foreign department, and to meet other obligations imposed upon it by the general constitution of the republic.

Each of the fourteen provinces of the Argentine Republic has a revenue of its own, which is derived by the imposition of local taxes on the inhabitants.

The province of Buenos Ayres (by far the most important one of the whole confederation), requires annually about 400,000*l.* to meet the expenses of its government, law courts, Chambers, militia, country schools (the number of which last year in the province amounted to 274), the University, Academy of Medicine, Museum, Library, &c., and also the interest of its public funds.

During the last financial year, the province of Buenos Ayres obtained this sum from the following sources:—200,000*l.* being the amount of a subvention, or grant, agreed to from the National Government; 50,000*l.* from stamp duties; 30,000*l.* from a property-tax; 20,000*l.* sale of public lands; 15,000*l.* duties levied on the slaughtering-houses, 10,000*l.*, duties on lotteries; 15,000*l.* from minor sources, and the sum of 60,000*l.*, being a surplus from previous years.

The municipality of the town of Buenos Ayres expends about 150,000*l.* annually in public schools, hospitals, lighting, cleaning and paving, and other public works of the town, deriving its revenue from special rates and taxes levied on the inhabitants of the city, and from a duty on the lottery.

(Signed)      FRANCIS CLARE FORD.

---

REPORT ON THE COMMERCIAL CONDITION OF THE ARGENTINE  
REPUBLIC.

The present report, being the first that has been addressed to Her Majesty's Principal Secretary of State for Foreign Affairs by any Secretary of Her Majesty's Legation in the Argentine Republic, has been drawn up at considerable length; but it has been hoped to supply some additional information to that at present existing concerning this interesting country—a country which no one who has visited it can doubt is destined at some future day to occupy a high place in the list of nations.

The report is divided under the following nine heads :—

1. Preliminary remarks.
2. Commerce: imports and exports.
3. River-plate beef.
4. Shipping.
5. Immigration.
6. Railways.
7. Mines.
8. Colonies.
9. Sheep farming, and profits to be derived from it.

#### *Preliminary Remarks.*

Few countries possess such natural advantages as those of the Argentine Republic. Endowed with a salubrious climate, its rich soil is capable of producing, at a very moderate outlay of labour, all the necessaries and comforts of life; but the apathy of the native inhabitants, and a marked disinclination to embrace any novel branch of industry, present a serious obstacle to the development of the country's resources; and, as it is as yet but little resorted to by the emigrant, the stroke of the axe and the clatter of the mill are sounds of very uncommon occurrence. Countless herds of cattle and flocks of sheep roaming on the vast plains of the Pampas alone attest to the wealth of the land, and form, by their hides and wool, its principal staple of commerce. Scantiness of population and deficiency of means of internal communication are the two pressing drawbacks to the development of the republic; and until a decided tide of immigration sets in, and the energies of the native population are diverted from politics and fighting to peaceful pursuits, and until difficulties are removed from the path of such foreigners as may be willing and capable of devoting their time and money to the construction of railways, but little prospect can be held out of any material change for the better in the condition of the country.

Fifty years ago the Argentine Republic was comparatively unknown to, and still less visited by, foreigners; but the introduction of steam communication, and the establishment of European settlers, have begun to work a great change in the habits of the people, and created new wants, for the supply of which the republic at present depends solely on the industry of

foreign markets. Nevertheless, were the capabilities of the vine-growing districts of the provinces of Mendoza and San Juan developed, the wines of France, Spain, and Italy would not attain to so high a figure in the list of importations. Sugar, rice, and tobacco from Tucuman, 'the garden of South America,' could more than replace the present supply of those articles now imported from the Havannah and the Brazils. Were the fertile soil of the provinces of Cordova and Catamarca made to yield its fruits, no extra wheat would be required from Chile; and cotton planted in Corrientes and Catamarca, and on the islands of the Parana would form a valuable article of export, whilst the mineral riches of the Andine Provinces, if properly utilized would prove a source of incalculable wealth.

So little is generally known of the early history of this country, beyond the fact of its having belonged to the crown of Spain, that the following brief sketch may not be devoid of interest:—

The Spanish dominions in South America were at one time comprised in the vice-royalty of Peru; but in 1718 a second vice-royalty was established, embracing the provinces of Quito, Popoyan, Choco, with the region called Terra Firma, and the capital was fixed at Santa Fé de Bogota. Out of the provinces of this second vice-royalty a third government was subsequently created, with the capital at Caracas; and the Republic of Chile was formed into a separate captain-generalship.

In 1778, a further subdivision was made, and the vice-royalty of Buenos Ayres was established. All the Spanish possessions to the east of the Andes were to be comprised in this vice-royalty.

The following were the provinces included in it:—

1. The province of Buenos Ayres, the capital of which was the city of that name, and which included the Spanish possessions now forming the republic of the Uruguay, as well as the Argentine Provinces of Buenos Ayres, Santa Fé, Entre Ríos, and Corrientes.

2. The Province of Paraguay, the capital of which was Assumption.

3. Tucuman, the capital of which was St. Jago del Estero, and which included what are now the Argentine Provinces of

Cordova, Tucuman, Salta, St. Jago, Catamarca, Rioja, and Jujuy.

4. Potosi, which now forms the republic of Bolivia.

5. Cuyo, the capital of which was Mendoza, and in which were comprehended the present Argentine Provinces of St. Luis, Mendoza, and San Juan.

Since the emancipation of the Spanish colonies, the following four independent states have been formed out of the ancient vice-royalty of Buenos Ayres, viz.:—

1. The republic of the Uruguay; capital at Montevideo.

2. The republic of Paraguay; capital at Assumption.

3. The republic of Bolivia; capital at Sucre.

4. The Argentine Republic; capital at Buenos Ayres.

*Extent and Population.*—The superficial extent of the Argentine Republic was estimated in 1864 at 515,700 square miles, with 1,465,000 inhabitants, or 2 to the square mile—a small population, even if compared with that of other South American countries; Brazil, for instance, having 3, Peru 6, and Chile 7; and scanty indeed by the side of such states as France, which has 176, England, which has 347, and Belgium, which has 440 inhabitants to the square mile.

The following table contains a list of the fourteen provinces actually composing the Argentine Republic, the number of inhabitants to each, and their superficial extent:—

Provinces	Population	Square Miles
Littoral or Riverine—		
Buenos Ayres . . . . .	450,000	63,000
Santa Fé . . . . .	45,000	18,000
Entre Ríos . . . . .	107,000	45,000
Corrientes . . . . .	90,000	54,000
Provinces contiguous to the Andes—		
Rioja . . . . .	40,000	31,500
Catamarca . . . . .	97,000	31,500
San Juan . . . . .	70,000	29,700
Mendoza . . . . .	58,000	54,000
Central Provinces—		
Cordova . . . . .	140,000	54,000
San Luis . . . . .	58,000	18,000
Santiago . . . . .	90,000	31,500
Tucuman . . . . .	100,000	13,500
Northern Provinces		
Salta . . . . .	80,000	45,000
Jujuy . . . . .	40,000	27,000
Total . . . . .	1,465,000	515,700

The unsettled territories of the Gran Chaco and Patagonia extend over 621,000 square miles, with a computed population (Indian) of 86,000 souls.

Some idea may be formed of the immense extent of the Argentine Republic from the fact that one half of it only, namely the settled territory, exceeds in size the whole of Great Britain and Ireland, France, and Spain put together.

The government of the Argentine Republic is based on the federal system.

Each province or state has its own respective governor and legislature, on the model of the United States of Northern America.

The authority of the general National Government is to a certain extent circumscribed, being limited to that exercise of sovereignty only of which each respective province or estate has thought proper to divest itself by granting express delegation for the purpose.

## 2. *Commerce.*

*Importations.*—Buenos Ayres, the capital of the province of that name, and the temporary residence of the National Government, is by far the most thickly populated, flourishing, and important town of the whole republic, a position which it owes not only to its geographical situation near the mouth of the River Plate, but also to the vast foreign interests centred in it, and to its being the head-quarters of the principal foreign merchants residing in this country.

The total official value of the goods introduced into the port of Buenos Ayres during the year 1865 amounted to a value of 5,420,603*l. 8s.*, being an increase of 24 per cent. on that of the preceding year; whilst the value of exports amounted to 4,399,355*l. 8s.*, showing an excess of 16*1*/*2* per cent. over 1864. The difference in favour of imports over exports was 1,021,248*l.* It is proper to observe, however, that the value given to the imports is not their cost price in the countries from which they are imported, but it is their valuation in these markets, including, besides their original cost, all charges that have been incurred on their account.

Owing to the existence of a defective administration, it has

hitherto been found impossible to collect and publish official returns of the exact mercantile transactions carried on in the interior provinces, to be issued simultaneously with those emanating from the National Custom-house of Buenos Ayres.

A comprehensive and complete knowledge cannot be obtained of the whole commercial transactions carried on during the year by the republic.

In speaking of the imports and exports of this country, it should be premised that they more especially refer to the province of Buenos Ayres and its transit land trade with the other Argentine Provinces.

Next in rank to the port of Buenos Ayres come those of Rosario, Corrientes, Uruguay, San Nicolas, and Gualeguaychú.

If 30 per cent. be added to the total of imports and exports from Buenos Ayres for the direct transactions of those ports carried on with foreign countries without passing through Buenos Ayres, and also on account of the trans-Andine commerce of Mendoza, San Juan, and Salta, a tolerably correct estimate may be formed of the external commerce of this country.

The principal goods imported into Buenos Ayres may be classified in the following manner:—provisions, drinkables, textile fabrics, articles used for shipping, ironmongery.

These articles, the first two excepted, with tea, tin, coal, and beer, and ready-made clothes, form the chief imports from Great Britain; from France, wine, brandy, haberdashery, articles of dress, and refined sugar are sent; Spain supplying wine, salt, oil, and paper; Portugal, salt; Italy, oil, maccaroni, wine, rice, and paper; Germany, cotton and woollen goods, rice, spirits, and ready-made furniture; Holland, sugar and gin; Brazil, yerba maté, sugar, spirits, and tobacco; Cuba, sugar and spirits; Chile sends cereals; and from the United States of Northern America, kerosene and the pinewood used in this country are obtained.

One of the most important articles of commerce, after French and Spanish wines and cotton goods from England, is yerba maté from Brazil and the republic of Paraguay. This plant is of as general use amongst the native population of this portion of South America as tea is in England.

*Imports from England.*—The value of merchandise imported last year from England amounted to 1,601,321*l.*, or 46 per cent. more than in 1864.

A remarkable increase in the trade in textile fabrics has taken place, showing in these articles alone an augmentation of 59 per cent. over the similar imports of the preceding year.

The value of these goods was estimated at 871,119*l.*, and formed nearly half the total amount of British imports to this country.

The following list will show the value of the several British textile fabrics introduced here last year:—

	<i>£</i>		<i>£</i>
Cotton goods . . .	157,792	Linen goods . . .	104,593
Woollen . . .	152,854	Flaxen . . .	48,653
Calicoes, shirtings, &c.	147,519	Silk . . .	12,205
Chintzes . . .	132,707		
Mixed stuffs . . .	114,796	Total . . .	<u>871,119</u>

The articles next in importance are: Ironmongery, for a value of 100,000*l.*; railway materials, 80,000*l.*; iron in bars, 50,000*l.*; ready-made clothes, 65,000*l.*; beer, exceeding 1,250,000 bottles, of a value of 40,000*l.*; and the sum total is made up by coals, saddlery, paints, haberdashery, and tea.

According to the official returns of the Custom-house, 31,674 tons of coal, valued at 74,436*l.*, were introduced last year into the port of Buenos Ayres. Of this amount, 26,000 came from England, being in excess of the quantity sent on the preceding year by 3,000 tons, and 8,000 tons more than were imported from that country in 1863.

The above figures, however, fall short of the actual amount of coal imported into this country, a large proportion of which is admitted free of duty for the use of the railways, gas-works, and river steam-navigation, and consequently does not appear in the return-list.

The average price at which coal is retailed in the city of Buenos Ayres varies from 3*l.* to 7*l.* per ton.

By a reference to the commercial returns of a few years back—those of the year 1856, for instance—it is seen what an excellent market England is establishing for herself in this country. In that year British textile fabrics imported were valued at little over 250,000*l.*, or 218 per cent. less than that sent last year; whilst the total amount of all British imports to this country did not exceed, that year, a value of 436,000*l.*, or 276 per cent. less than the value imported in 1865.

*Imports from France.*—The productions of France, which take the next place to those of England in the return-list of imports, amounted last year to 1,334,393*l.* in value, being 54 per cent. higher than those of 1864, but being about 20 per cent. less than those sent by England in 1865.

The augmentation in the amount of French woollen goods imported is very remarkable, showing an increase of 65 per cent. last year over the preceding one. The value of these fabrics imported in 1856 hardly exceeded the sum of 38,000*l.*, against 164,288*l.* last year, a difference of 392 per cent. on the ten years. The increase on English woollen goods during the same time was only 108 per cent., and French woollen goods imported into Buenos Ayres last year exceeded by 7 per cent. those shipped from England. This result is partly due to the fact that a considerable amount of woollen goods are despatched from Germany to the port of Havre in transit to Buenos Ayres, where they figure in the returns as French woollen goods.

The import of cotton goods from France also shows an augmentation of 46 per cent. in 1865 over that of the preceding year; but England holds her ground in the greater supply of this particular article, 231 per cent. more cotton goods having been imported into Buenos Ayres last year from that country than from France. Nevertheless, France is improving her trade in these fabrics; for, whilst the increase on the part of England since 1856—ten years—has only been at the rate of 2 per cent. annually, that of France has been upwards of 6.

French mixed stuffs (wool and silk) are finding a good market here. Their value imported into Buenos Ayres last year was 43,000*l.*, or 11 per cent. more than that of similar goods imported in 1864—116 per cent., however, less value than what came from England in 1865.

The value of linen fabrics imported from France to this country amounted last year to 13,399*l.*, or 209 per cent. over that of 1864. The value of flaxen goods was 13,000*l.*, and of silken goods for a value of 14,300*l.* or nearly half the amount introduced here in 1864.

This sudden falling off in an article preeminently of French industry can only be accounted for by certain items not figuring in the returns of the imports, and it would appear that no small amount of smuggling is carried on in this particular article.

In wine and brandy, however, consists the chief commerce of France with this country, and the total value of these sent last year amounted to 275,326*l.*

The rapid development of the taste for foreign wines and spirits is very remarkable. Not thirty years ago some difficulty was found by a merchant here in disposing of a single cargo of French wines; whilst at the present day over 60,000 hogsheads are annually consumed in the province of Buenos Ayres alone.

Wines, too, from Spain and Italy, and spirituous liquors from Germany and Holland, are imported to an enormous amount. The total value of beverages introduced last year into the Argentine Republic exceeded 800,000*l.*; but it is right to remark that the rate at which the consumption of such articles is increasing is partly due to the vast augmentation in the foreign population of this country.

Articles of haberdashery of a value of 128,000*l.* were imported last year from France, against 36,613*l.* of the same articles sent by England. This fact shows an appreciation of the superior taste displayed by the French, as compared with the English, in these articles, which are chiefly parts of female attire.

Ready-made clothes of a value of 75,000*l.*, hats, sandals, and furs (upwards of 30,000*l.* value of each), together with ironmongery, refined sugar, and eatables, constitute the total of the principal mercantile dealings of France with the Argentine Republic.

*Imports from Brazil.*—Brazil ranks next to England and France in the value of her imports to this country, which amounted last year to 474,209*l.*, or 28 per cent. higher than 1864, and consist principally of yerba maté, sugar, and a spirit made from the sugar-cane, and called caña. Brazilian yerba maté is less esteemed than, and fetches one-third the price of, that grown in the republic of Paraguay. Sugar of a value of upwards of 100,000*l.*, tobacco, and cedar-wood, which is greatly used for building purposes, form the other chief exports from Brazil; the amount of the total value last year being made up by articles of European manufacture which were shipped to this port.

*Imports from United States.*—The trade from the United States of Northern America occupies the fourth place in the

Argentine import returns, and amounted last year to a value of 322,816*l.*, or a small increase of 2 per cent. on that of the preceding year. Indeed, the trade with the United States has remained almost stationary during the last ten years.

As much as 130,000 barrels of flour were formerly exported annually to Buenos Ayres; but latterly the supply has not been required, owing to the increased cultivation of wheat in this country. The withdrawal of so important an item of commerce has, however, been counterbalanced by the extra demand for North American pine-wood, of which double the quantity has been imported here within the last ten years. The greatly-increased demand for this article is a striking proof of the rising prosperity of the Argentine Republic, being, as it is, an evidence both of the development of house-building and of the augmentation of sheep and cattle in the country, for the latter necessitate each year a larger supply of wood for the construction of sheds and other appurtenances required for sheep-farming. The total value of North American imports to this country last year was made up principally by the following articles: Pine-wood, upwards of 26,000,000 feet, and other woods, of an aggregate value of upwards of 170,000*l.*; 225,000 gallons of kerosene, valued at 20,000*l.*; and a considerable amount of iron-mongery, tobacco, and railway materials.

*Imports from Spain.*—Spain, owing to her immense trade in wines, occupies the fifth place in the list of importers into this country; the total value sent by her in 1865 being 267,087*l.*, or 3 per cent. decrease on that sent in the previous year. Upwards of 182,000*l.* of this sum was for drinkables alone; eatables, salt, and oil forming the other chief articles of her commerce.

The oil trade from Spain shows a tendency to cede its place to the oil produced in Italy. Ten years ago the respective values of imports of that article from the two countries stood thus: Spain, 11,862*l.*, Italy, 11,813*l.*—nearly equal; whilst last year Spain exported to the value of 12,481*l.*, but Italy to that of 51,363*l.*

*Imports from Cuba.*—Imports from Cuba amounted last year to upwards of 72,000*l.*, or 12 per cent. higher than in

1864; of which the sum of upwards of 50,000*l.* is for sugar; spirits and tobacco making up the balance.

*Imports from Italy.*--The value of imports from Italy amounted last year to 252,254*l.*, or 16 per cent. higher than in 1864; of which wine for a value of upwards of 37,000*l.* was sent; oil, vermicelli, rice, and paper making up the other articles of her trade with this country; that in paper, mostly of a description used for packing and making cigarettes, being very considerable, and the amount imported has doubled within the last ten years.

*Imports from the Republic of Uruguay.*--The neighbouring republic of the Uruguay takes the seventh place amongst the importers into this country. The value sent last year was 241,171*l.*, or 17 per cent. less than in 1864. The principal items of her contributions are not of native produce, but consist of yerba maté, in transit from Brazil, and of textile fabrics of European origin; for the principal foreign merchants of Buenos Ayres have branch mercantile houses at Monte Video, from which they are in the habit of obtaining articles required in the market here, and which they may have in their stores at Monte Video.

*Imports from Germany.*--The value of imports from Germany comes next in order, and amounted last year to 221,474*l.*, or 26 per cent. in excess of that of the previous year. This sum is made up in the following manner: woollen and cotton goods 34,000*l.*, brandy 28,000*l.*, and 15,000*l.* of gin and liqueurs, besides a quantity of furniture, rice, haberdashery, saddlery, and last, though not least in importance, by 237 fine breeding rams, valued at 5,203*l.*

The traffic carried on with the other thirteen provinces of the Argentine Republic figure in the official returns for a value, last year, of 203,888*l.*, or 88 per cent. less than in the preceding year. The articles consist chiefly of cereals, wood, fruit, and tobacco.

*Imports from Holland.*--The imports from Holland to this country take the tenth place with regard to value, and amounted last year to 158,572*l.*, or 30 per cent. higher than in 1864, which augmentation is mainly due to the increased con-

sumption of sugar and gin ; 69,000*l.* worth of the former, and 46,000*l.* of the latter article, were consumed last year.

Brandy, cigars, and cheese, with rice and coal, make up the total of the trade.

*Imports from the Republic of Paraguay.*—The imports from the republic of the Paraguay follow next in importance, and amounted to 133,307*l.* for the last year, or 44 per cent. less than in 1864.

The imports consist of upwards of 256,000 lbs. weight of yerba maté, valued at 85,000*l.*; of nearly 2,000,000 lbs. weight of tobacco, valued at 42,000*l.*; and of a considerable amount of wood and spirits.

All further supplies from that country are, however, temporarily stopped on account of the war at present being waged against that republic.

The other nations which supply the Argentine Republic, and which remain to be noticed are as follows:—

*Imports from Belgium.*—Belgium, value of imports 81,588*l.*, or 16 per cent. higher than in 1864 ; the chief trade consists in ironmongery, crockery, zinc, linen fabrics, and haberdashery.

*Imports from Chile.*—Chile, value of imports 9,818*l.*, or 172 per cent. decrease on the imports of the preceding year. The chief trade with Chile consists in cereals, which, as they are every day becoming more cultivated in this country, would account for the decrease of mercantile transactions between the two republics ; moreover Chilean trade may have been prejudicially influenced by the late hostilities with Spain.

*Imports from India.*—India, value of imports 31,655*l.*, or 55 per cent. higher than in 1864.

The trade consists principally in tea, silks, straw matting, greatly used for carpeting, furniture, fireworks, and eatables.

The value of tea imported amounted last year to 14,000*l.*, against 5,000*l.* ten years ago.

The sum of 8,835*l.* figures in the list of imports as the value of merchandise from places not specified, and consisting principally of eatables and coal, both of which are of European origin.

*Imports from Portugal.*—Portugal is the last country on the list, 5,508*l.* being the amount of value of her contributions to the Buenos Ayrean market.

Salt from St. Ubes, and a small quantity of port wine, are the principal articles imported.

Thus the value of imports last year from Europe amounted to 3,931,031*l.*; those from America to 1,457,817*l.*; and those from Asia to 31,755*l.*; making a total of 5,420,603*l.*; and showing an increase on the previous year of imports from Europe of 39 per cent.; from Asia 56 per cent.; but on those from America a decrease of 5 per cent.

Five years ago the value of merchandise imported from England into Buenos Ayres amounted to 857,898*l.*, or nearly half that of last year. The trade from France and the Brazils has likewise doubled in the same time; whilst that from Italy, Holland, and more especially Portugal, has more than done so; but Spain, the United States of Northern America, and Germany, have not materially improved their commercial relations with this country.

The different classes of articles imported last year, may be summed up in the following manner:—

COMPARATIVE STATEMENT OF GOODS IMPORTED INTO BUENOS AYRES  
DURING THE YEARS 1864-65.

	1864		1865			
	£	s. d.	£	s. d.		
1. Different tissues; principally woollen and calicoes . . . . .	1,002,915	4	0	1,412,739	12	0
2. Eatables; principally sugar, yerba maté, and rice . . . . .	1,074,885	8	0	957,276	8	0
3. Divers fabricated articles; principally haberdashery, perfumery, and ready-made clothes . . . . .	656,641	16	0	873,895	8	0
4. Drinkables; principally red wines and gin . . . . .	628,236	16	0	813,172	4	0
5. Materials for industrial purposes; principally coal, iron, and wood . . . . .	485,194	4	0	649,897	12	0
6. Groceries; principally tobacco, packing paper, and kerosene . . . . .	275,947	0	0	345,969	12	0
7. Articles used for shipping; ironmongery and paint . . . . .	217,846	12	0	315,417	4	0
8. Writing materials, paper, &c. . . . .	28,467	8	0	52,235	8	0
Total . . . . .	4,370,134	8	0	5,420,603	8	0

Increase of 24 per cent. in 1865 over 1864.

*Exportations from Buenos Ayres.*—Wools, washed and un-washed, hides and skins of different descriptions, grease, tallow,

horsehair, ostrich feathers, cattle horns, bones, bone ash, and salted meat, are the main articles of Argentine native produce, and the following list will show the value of each exported last year, amounting in all to 4,399,355*l.*

Articles	Quan- ties	£ sterling
Wool . . . . .	lbs. weight	115,842,430
Hides, ox and cow . . . . .	separate	1,690,763
Grease and tallow . . . . .	lbs.	28,822,799
Sheep skins . . . . .	separate	17,263,333
Salt meat . . . . .	lbs.	45,699,800
Horsehair . . . . .		3,286,127
Horse hides . . . . .	separate	151,588
Ostrich feathers . . . . .	lbs.	153,330
Bone ash . . . . .	tons	6,989
Hide cuttings . . . . .	lbs.	1,678,300
Bones . . . . .	tons	2,947
Shin and shank bones . . . . .	separate	4,808,000
Otter skins . . . . .	lbs.	52,037
Tips of horns . . . . .	separate	1,210,000
Deer skins . . . . .	lbs.	91,058
Shunk skins (unborn animals) . . . . .	"	109,539
Breeding rams . . . . .		4,756
Hoofs, salted tongues, animal oil, tiger and other skins, rags, and soap . . . . .		—
Miscellaneous . . . . .		20,122
		88,793
Total . . . . .	—	4,399,355

*Exports to Antwerp.*—The export trade to Germany, Holland, and the north of Europe, is directed to the Port of Antwerp; it is not surprising therefore that Belgium should rank as Buenos Ayres' best customer. The value of merchandise exported to that country last year amounted to 1,411,477*l.*, or 18 per cent. more than in 1864; of this sum 1,052,556*l.* was the value of 53,000,000 lbs. weight of wool, or nearly 160,000*l.* worth more than was sent on the preceding year, and the sum of 226,000*l.* represents the value of 355,000 ox and cow hides; the other articles of export consisting of grease, horsehair, and sheep skins.

*Exports to France.*—France is next in importance as a consumer of Argentine produce, and took last year for a value of 1,031,805, or 46 per cent. more than in 1864, which sum was made up in the following manner: 438,000*l.* for 26,000,000 lbs. weight of wool, or double the quantity taken in 1864; 201,000*l.* for sheep skins; 134,000*l.* for 10,000,000 lbs. weight of grease

and tallow, being 4,000,000 lbs. weight more than was taken in 1864; 93,000*l.* for ox and cow hides; 20,000*l.* for horsehair; 24,000*l.* for ostrich feathers; and a similar sum for goat skins.

*Exports to the United States.*—The United States of Northern America rank third on the Export List; a value of 968,190*l.* of goods having been shipped for there last year, or 20 per cent. more than in the previous year.

The consumption of Buenos Ayrean wool, from 21,000,000 lbs. weight in 1864, rose last year to 28,000,000 lbs., of a value of 611,000*l.*; but it is greatly to be doubted if the same satisfactory result will be attained in future years should the proposed tax on wool be passed which, it was feared, had been levied already in the United States, but the discussion of which has been postponed by the North American Congress until next December. This tax would have the effect of excluding all medium qualities, or wools not got up with the greatest possible care and cleanliness. Indeed the duty proposed is so high as would only allow of the best-conditioned articles being exported, and would equal on an average the cost of Mestiza wool in the Buenos Ayrean market.

In addition to wool, the other exports to the United States consisted of 600,000 cow hides, valued at 300,000*l.*, and by such articles as horsehair, goat skins, &c., no grease and tallow being sent.

*Exports to Great Britain.*—The value of exports to England last year was 487,460*l.*, or 10 per cent. decrease on that of the preceding year, wool, cow hides, sheep, and other skins, having been in less demand. The amount of wool taken was 6,622,229 lbs. weight, of a value of 157,000*l.*, or 2,500,000 lbs. weight less than in 1864; of horse hides for a value of 30,000*l.*; of sheep skins for a value of 26,000*l.*, or 10,000*l.* less than were taken in the previous year; of ox and cow hides 130,000, valued at 90,000*l.*, or 22,000*l.* worth less than in 1864, in which year otter skins for a value of 7,684*l.* were shipped, against 2,700*l.* of that article last year.

A marked augmentation, however, has been experienced in the consumption of other produce; in bone ash, for instance, which from 331 tons that were exported in 1864 had risen to 7,000 tons, of a value of 13,700*l.* in 1865; and in a double

quantity of grease and tallow, of which 9,700,000 lbs. weight, of a value of 120,000*l.*, were shipped to England last year.

*Exports to Italy.*—The export trade to Italy last year was valued at 154,542*l.*, or 11 per cent. less than that of 1864, and consisted of 175,182 ox and cow hides, worth 95,000*l.*, or 10,000*l.* less than were taken in the previous year; of 1,448,000 lbs. weight of wool, of a value of 29,000*l.*, being 6,000*l.* less than in 1864; and 4,500*l.* of grease and tallow.

The export of sheep skins to Italy from 28,000 lbs. weight in 1864, rose last year to nearly 300,000 lbs., of a value of 4,100*l.*

*Exports to Spain.*—Spain ranks sixth in the export list, and took last year goods to the amount of 125,979*l.*, or 9 per cent. decrease on that of 1864. The principal articles exported were 226,000 ox and cow hides, valued at 111,000*l.*, or 11,000*l.* less than were taken the previous year; 13,500 horse hides, valued at 27,000*l.*, or 600*l.* less than in 1864.

*Exports to Cuba and Brazil.*—On the export trade with Cuba the still greater decrease of 17 per cent. is shown. The total value of exports to that island amounted last year to 77,712*l.*, of which sum 74,712*l.* was for jerked beef. This beef, or 'charqui,' as it is termed, forms the chief article of food for the negro population of that island. It is likewise largely consumed in the Brazils, to which country 27,700,000 lbs., of a value of 63,000*l.*, were exported last year, and is sold at a rate equivalent to 2*d.* the lb. The total value of the exports to the Brazils was 72,000*l.*, or 5 per cent. higher than in 1864.

The ninth entry on the export list is for ports not specified, and figures for a sum of 36,895*l.*, or 82 per cent. higher than that of the corresponding item in 1864.

*Exports to the Republic of Uruguay.*—The value of exports to the neighbouring republic of Uruguay was 36,895*l.*, or 255 per cent. increase on 1864, and consisted in salt and dry hides, sent as ballast of the vessels that had to complete their cargoes there for foreign countries.

*Exports to Chile.*—Chile imported last year from Buenos Ayres for a value of 9,603*l.*, of which sum 7,500*l.* was for grease and tallow; soap and salt were the other articles taken.

The sum of 3,202*l.* represents the value of exports to the

other provinces of the Argentine Republic, and consisted last year, for the most part, of salt and breeding rams.

*Exports to India.*—India holds the last place in the list of exports. The value taken by that country in 1865 being 800*l.* Live mules are the chief articles of trade.

The above report of the export trade of this country refers only to that carried on by shipping, and which figures in the official Custom-house returns of Buenos Ayres.

The commercial transactions between the Andine Provinces and the neighbouring republics of Chile, Bolivia, and Peru, which are, however, of a secondary order, do not enter in the official returns.

It should further be stated that the specified destinations of the produce exported to the various countries named in the returns may meet with some alterations from the fact that many cargoes are shipped from Buenos Ayres to different ports in the British Channel 'for orders' to proceed to any part of England or the Continent of Europe where the markets may offer the most advantageous sale.

*General Remarks on Argentine Exports.*—The subjoined comparative statement of the value of Argentine exports to different countries will show that in a period of five years, 1861 to 1865, the value of them has nearly doubled in every instance but that of England.

Exports	1861	1865
	<i>£</i>	<i>£</i>
Belgium . . . . .	590,339	1,411,477
France . . . . .	410,666	1,031,805
United States . . . . .	218,514	968,190
Spain . . . . .	42,357	125,979
Cuba . . . . .	21,643	77,712
Italy . . . . .	89,812	154,542
Brazil . . . . .	40,257	72,140
Chile . . . . .	1,200	9,603
England . . . . .	499,889	487,460

Owing, however, to the great consumption of English goods in this market, England will be found to rank first when the total amount, imports and exports inclusive, are calculated.

In the following list the value of the total commercial transactions carried on by the Argentine Republic during the five

years 1861—1865 has been calculated, and shows the place occupied by different foreign nations as traders with this country.

## 1861 TO 1865 INCLUSIVE.

	Value of Imports			Value of Exports			Total		
	£	s.	d.	£	s.	d.	£	s.	d.
1. England . .	5,638,413	12	0	2,705,333	0	0	8,343,746	12	0
2. France . .	4,792,043	4	0	3,490,987	16	0	8,283,031	0	0
3. Belgium . .	394,543	8	0	5,016,232	4	0	5,410,775	12	0
4. United States . .	1,422,167	0	0	3,418,925	0	0	4,841,092	0	0
5. Spain . .	2,094,036	4	0	603,825	4	0	2,094,036	4	0
6. Island of Cuba . .	433,842	4	0	355,755	16	0	789,598	0	0
7. Brazil . .	2,044,020	16	0	276,614	12	0	2,320,635	8	0
8. Italy . .	940,685	0	0	709,172	16	0	1,649,857	16	0
9. Germany . .	1,149,102	4	0	27,118	8	0	1,176,220	12	0
10. Holland . .	527,066	0	0	216,075	12	0	742,141	12	0
11. India . .	130,208	8	0	5,986	12	0	136,195	0	0

It will appear from the Board of Trade returns of the declared values of the exports from Great Britain during the half-year of 1865, that the Argentine Republic ranks nineteenth in order of the various communities of the world who trade with her, and that she is a better customer for English produce and manufactures than either the republics of Chile and Peru, the empire of Japan, the kingdoms of Sweden and Norway and Denmark, or the empires of Austria and Russia.

The total amount of wool exported last year from the whole of the Argentine Republic amounted to 119,560,600 lbs. weight, of a value of 2,449,283*l.*; of this quantity 115,842,430 lbs. weight, valued at 2,378,251*l.*, were shipped from the port of Buenos Ayres to the different countries as stated in the subjoined list.

Countries	Weight of Unwashed Wool				Weight of Washed Wool			
		lbs.	£	s. d.		lbs.	£	s. d.
1. Belgium (for German market) . .	52,679,809	1,050,442	0	0	56,053	1,916	8	0
2. France . .	25,791,637	514,165	4	0	108,525	2,503	0	0
3. United States . .	25,495,892	509,072	12	0	3,124,470	102,496	4	0
4. England . .	4,933,935	98,838	12	0	1,688,294	58,283	0	0
5. Italy . .	1,446,597	28,932	12	0	1,675	62	0	0
6. Ports not specified . .	460,384	9,207	8	0	—	—	—	—
7. Uruguay . .	57,357	1,147	6	0	—	—	—	—
8. Spain . .	6,012	120	6	0	1,790	64	8	0
Total . .	110,861,623	2,211,926	0	0	4,980,807	166,325	0	0

Nearly all the wool is exported in an unwashed state ; owing to the scarcity of labourers, and to a general deficiency of water, except in the immediate neighbourhood of the rivers, it would not repay the sheep farmers to send their wool washed.

Buenos Ayrean wool, as compared to that of other countries, suffers under no slight disadvantage, on account of the prevalence on the Argentine pastures of a small seed of the wild clover, called caratilla, which sticks in the fleeces of the sheep and from which it is with difficulty eradicated. The machinery used in England for cleaning wool is not adapted to cope with this drawback, and that is one of the chief reasons why, comparatively speaking, so little Buenos Ayrean wool finds a place in the English market. A large amount of it, however, finds its way into England, imported from other countries and made up in yarn.

The number of bales of wool exported from Buenos Ayres in 1832, was 944 ; in 1840 the number had increased to 3,577 bales, or 280 per cent. in the eight years, from which period an extraordinary augmentation has taken place, the number of bales exported from November 1, 1864, to October 31, 1865, having amounted to 130,860 or 104,688,000 lbs. weight of wool.

The following table of the export of wool since the year 1852 will show the steady increase in that particular branch of Argentine industry :—

Season Nov. 1 to Oct. 31	Export of Wool from Buenos Ayres					Corresponding Ex- port of Sheep skins.		
	No. of Bales	Increase in Bales	Increase in per cent.	Pounds Weight	Sheep at 7 Fleeces per 25 pounds	Flocks at 1,500 sheep each	Bales	Sheep skins at 200 per Bale
1852-53	20,514	—	—	16,411,200	4,597,136	3,064	1,398	279,600
1853-54	22,450	1,936	9.43	17,960,000	5,028,880	3,352	161	32,200
1854-55	25,769	3,319	14.78	20,617,000	5,772,256	3,848	2,069	413,500
1855-56	32,624	6,855	26.60	26,099,200	7,307,776	4,871	5,966	1,193,200
1856-57	37,543	4,919	15.06	30,034,400	8,409,632	5,606	8,009	1,601,800
1857-58	39,252	1,709	4.52	31,401,600	8,792,448	5,861	7,776	1,555,200
1858-59	48,737	9,485	24.15	38,989,600	10,919,088	7,278	9,462	1,892,400
			less					
1859-60	42,275	6,462	—	33,820,000	9,469,600	6,313	10,715	2,143,000
1860-61	60,734	18,459	43.65	48,587,200	13,604,416	9,069	8,888	1,777,600
1861-62	67,161	6,427	10.58	58,728,800	15,044,064	10,104	10,766	2,153,200
1862-63	88,780	21,619	32.19	70,224,000	19,656,720	13,104	13,960	2,792,000
1863-64	96,679	7,899	8.90	77,343,200	21,656,196	14,438	16,733	3,346,600
1864-65	130,860	34,185	35.36	104,658,000	29,312,640	19,541	19,855	3,971,000
1865-66	150,453	19,593	15.00	120,362,400	33,701,472	22,467	20,761	4,152,200

The wool clip this year (1866) shows a marked improvement over that of the last season, and amounts to upwards of 150,000 bales.

An unusually rainy season has, to a certain extent, improved the condition of the soil; the flocks have been exceedingly healthy, and the quality of their fleeces finer.

The export of hides, next to that of wool, forms the most important commerce of this country.

Dry ox and cow hides are in greater demand than salted ones, whilst salted horse hides are preferred to the dry.

The total number of all sorts exported last year was upwards of 2,000,000, or double the amount exported in 1853.

The following table will show the progressive increase in this particular trade since the year 1853:—

**TOTAL EXPORT OF OX, COW, AND HORSE-HIDES FROM PORT OF BUENOS AYRES.**

Season Nov. 1 to Oct. 31	Salted		Dry	
	Ox and Cow	Horse	Ox and Cow	Horse
1852-53	400,831	114,066	604,868	15,889
1853-54	406,432	224,684	697,198	9,258
1854-55	363,293	138,333	607,536	5,983
1855-56	432,735	158,088	808,806	27,092
1856-57	465,909	237,923	972,536	91,224
1857-58	328,282	117,178	1,119,845	63,862
1858-59	531,427	128,528	1,036,273	55,426
1859-60	420,525	212,096	1,241,968	66,518
1860-61	358,613	157,844	1,104,589	43,056
1861-62	347,740	123,734	1,256,968	49,508
1862-63	382,005	158,132	1,344,052	34,682
1863-64	449,330	146,129	1,241,597	41,629
1864-65	416,813	145,810	1,430,490	31,091
1865-66	488,017	99,266	1,288,285	29,227

Fewer horses have been killed this season than on previous ones, which accounts for the diminution in the number of hides exported; but no decrease has taken place in the export of dry ox and cow hides, although in the above list a falling off is shown in the figures as compared with those of last season, and is to be accounted for by the hides being shipped a month later. A considerable quantity are ready for shipment next month (November).

The export of grease and tallow is the third article of im-

portance in the commerce of the country, and is one that is increasing considerably.

In 1864, 15,374 pipes of tallow were shipped from Buenos Ayres ; last year the amount had risen to 33,421, and this year to 35,332 pipes ; but the export of mares' grease has diminished sensibly within the last few years. Thus, whilst in 1861, 3,598 pipes of that article were exported, the amount last year was only 700. The falling off in this trade is to be accounted for by the increased home consumption of it for the manufacture of soap, and for common lighting oil, and by the fact of the grease of mares being largely mixed at present with that of sheep and other animals, which is included under the general head of tallow. The practice of slaughtering mares for the sake of the grease and tallow, is one that must strike a European with surprise. It derives its origin from the little use made in this country of those animals ; indeed it would be considered as a disgrace by the gauchos who pass the greater part of their lives in the saddle, to be seen riding on mares.

Moreover, the natural increase of mares, and their little value when compared to that of horned cattle and sheep, compel their owners to dispose of them at any price.

The method employed for killing cattle is extremely expeditious, and calculated to give as little pain as possible to the animal, which is dragged by a lasso into a small open enclosure, five feet high, on the top of which the slayer stands, and by the puncture of a knife, adroitly inserted between the horns of the beast, severs the spinal cord, thus causing instantaneous death.

During the killing season as many as 600 head of cattle are slaughtered daily in a single establishment.

The total number of horned cattle killed annually in the several South American cattle-producing countries, may be estimated at 3,600,000. This calculation is based on the number of salted and dried hides exported yearly, and averaging, from the province of Buenos Ayres, 800,000 (the greater proportion being dried ones) ; from the provinces of Entre Ríos, Corrientes, and Santa Fé, 600,000 ; from Monte Video and the ports on the River Uruguay, 1,200,000 ; and from the Brazilian province of Rio Grande do Sul, 1,000,000.

Allowing 20 per cent. as the amount of stock killed, a total of 18,500,000 would be given as the number of horned cattle in these regions, distributed in the following manner:—Provinces of Buenos Ayres and Santa Fé, 5,000,000; provinces of Entre Ríos and Corrientes, 2,500,000; republic of the Uruguay (Monte Video), 8,000,000; Rio Grande do Sul, 3,000,000.

It should be remarked, in connection with the estimated larger amount of cattle given to the small republic of the Uruguay, as compared to the provinces of Buenos Ayres and Santa Fé, that in the former republic sheep-farming is not as much developed as in the latter provinces, in which, consequently, horned cattle are found in less number.

In the Argentine slaughter-houses nothing is wasted. The hides are carefully salted or dried; the meat is cut off in steaks, and steeped in brine for consumption in the markets of Rio Janeiro and the Havana; the horns and hoofs are set aside and find a ready sale abroad; the bones and flesh not required for other purposes are thrown into gigantic vats and steamed down for grease and tallow; the dried burnt bones are collected and enter largely as an article of export trade as bone ash, with which the blood of the animals is sometimes mixed in order to improve its manuring quality; finally, the pulpy meat and refuse, from which no more grease can be extracted, is made serviceable as fuel for the furnaces of the steam-vats.

### 3. *River Plate Beef.*

A new branch of industry is springing up in the Argentine Republic by the preservation of River Plate beef—adapted for consumption in the European market. As this subject has been fully treated in a former report, it will only be necessary to recapitulate the three processes that appear to merit the greatest attention.

By Dr. Morgan's process the cattle when killed are injected with a briny fluid, which effectually preserves the meat without destroying its juicy properties. It will be sold at 4d. a lb. in England. By Baron Liebig's method the nutritive qualities of the meat are extracted by pressure and evaporation, and formed into a kind of paste, with which most excellent soup can be made, 128 basins of broth out of 1 lb. of concentrated meat:

33 lbs. of solid meat are reduced to a bulk of 1 lb. weight, and placed in a tin, which will be sold at a price of 12s. 6d. in England. For army, navy, and hospital purposes this preparation, which already is largely sold in Germany, is preeminently adapted, both on account of the entire absence of grease in it and from the ease with which it can be carried.

The Sloper process is based on the principle of the destruction of oxygen in the tins in which it is packed. The meat will present the appearance of freshly killed butcher's meat, and be as good to the taste, and will be sold in England at 4d. the lb.

#### 4. *Immigration.*

One of the first objects that meets the eye of a person landing on the pier at Buenos Ayres is a placard notifying the address of an asylum where immigrants can receive board and lodging gratis; but comparatively few avail themselves of the hospitality, and even those who do so seldom remain upwards of four days in it, so great is the facility with which employment is procured in this country.

The following list will show the total number of immigrants who have arrived at the port of Buenos Ayres during the last eight years and up to October 25 of 1866.

#### NUMBER OF IMMIGRANTS ENTERED IN THE —

Years	Port	Asylum	Years	Port	Asylum
1858	4,658	224	1863	10,408	545
1859	4,736	37	1864	11,682	440
1860	5,656	143	1865	11,767	1,300
1861	6,301	599	1866	10,400*	
1862	6,716	437			

In the subjoined statement will be found a description of the class of immigrants whose services are most required at Buenos Ayres. A list of the current wages given to each is appended, but skilled workmen and workwomen can command much higher prices.

\* Up to October 25, 1866.

Profession	Wages					
	£	s.	d.	£	s.	d.
Farmers . . . . .	3	6	8			
Gardeners . . . . .	4	2	6	to	5	0
Field labourers . . . . .	2	8	0	to	3	6
Domestic servants (male)	2	8	0			
" (female) . . . . .	2	0	0	to	3	6
Cooks (male) . . . . .	3	6	8	to	4	2
" (female) . . . . .	2	6	0	to	3	6
Children from 10 to 15 years of age . . . . .	0	16	8	to	1	5
Seamstresses . . . . .	2	18	0			
Washerwomen . . . . .	2	18	0			
Masons . . . . .	0	6	8			
Carpenters . . . . .	0	6	8	to	0	7
Smiths . . . . .	0	6	8	to	0	7
Shoemakers . . . . .	0	6	8	to	0	8
Tailors . . . . .	0	6	8	to	0	10
Day labourers . . . . .	0	4	0	to	0	5
Railway labourers . . . . .	0	6	8			

Monthly wages with Board.

Daily wages without Board.

During the summer (which in this country commences in November), field labourers can earn from 6s. 8d. to 8s. 4d. daily.

Domestic servants, especially females, and needlework women, are in great demand.

Owing to the increased construction of railways, employment could be found by any number of workmen who might present themselves.

Labourers in New Zealand can earn from 7s. to 8s., and skilled artizans from 10s. to 15s. daily; but in that country provisions are much dearer than in the Argentine Republic, where flour can be obtained at from 15s. to 20s. to the 100 lbs., and meat from  $\frac{1}{2}$ d. to 1d. the lb.

There are at present five different lines of steamers in monthly communication with Buenos Ayres, namely:—

Lines	Price of Passage	Average duration of Voyage
	£	Days
Southampton . . . . .	25	35
Liverpool (two lines) . . . . .	20	38 to 40
Bordeaux . . . . .	20	33
Genoa . . . . .	10	40

There are besides various lines of sailing vessels especially

adapted to the use of immigrants, and which start from the following ports.

Ports	Price of Passage	Average duration of Voyage	
		£	Days
Liverpool . . . . .	12 to 14		60
Glasgow . . . . .	12 to 14	70 to 75	
Havre . . . . .	8		50
Bordeaux . . . . .	8		60
Bayonne . . . . .	10	55 to 60	
Marseilles . . . . .	8	70	
Antwerp . . . . .	8		75
Amsterdam, Rotterdam . . . . .	8	70	
Hamburg, Bremen, Lubock . . . . .	12	80	
Genoa, Savona . . . . .	8	75	
Carril, Vigo, Corunna . . . . .	9 to 10	55	
Barcelona, Tarragona . . . . .	10	65 to 70	
Cadiz, Malaga . . . . .	8	55	

The present rate of immigration is greatly in disproportion to the requirement of this country. It is, nevertheless, on the increase, and the number of immigrants, as will be shown in the following list, has nearly doubled within the last four years.

#### IMMIGRATION FROM EUROPE, ACCORDING TO NATIONALITY, SEX, AND PROFESSION.

Nationality	1862	1863	1864	1865
Italians . . . . .	3,082	4,494	5,435	5,001
French . . . . .	1,561	2,334	2,736	2,282
Spanish . . . . .	919	1,377	1,586	1,701
Swiss . . . . .	291	567	329	502
English . . . . .	574	883	1,015	1,583
Germans . . . . .	140	527	289	363
Belgians . . . . .	50	100	100	100
Portuguese . . . . .	25	50	51	50
North Americans . . . . .	—	—	—	85
Other nationalities not specified . . . . .	74	76	73	100
Total . . . . .	6,717	10,408	11,682	11,767

NOTE.—Men 66 per cent.; women 16 per cent.; children 18 per cent.; workmen 70 per cent.; artisans 20 per cent.; without profession 10 per cent.

The majority of immigrants are Italians by birth; a similarity in the religion, language, and climate to that of their native country attracts them to the shores of the Argentine Republic. Their number in the province of Buenos Ayres alone is es-

timated at upwards of 70,000, of whom 40,000 reside in the town of Buenos Ayres. They are employed chiefly as boatmen and nursery gardeners. They lead as a rule extremely parsimonious lives, amassing considerable sums of money, and remitting, it is stated, as much as 100,000*l.* annually to their friends in Europe.

The number of Frenchmen in this country is estimated at 25,000. The number from the Basque provinces is very considerable; their usual occupation is in the saladeros or slaughtering houses. The trade of milkmen is, also, almost entirely monopolised by them. Nearly all the barbers' shops in the city of Buenos Ayres are held by Frenchmen, whilst in the country the small retail store shops are very generally kept by French Basques.

Spanish settlers in this country muster about 32,000; the immigrants for the most part proceed from the northern provinces of the peninsula.

The number of Germans hardly exceeds 3,500, of whom the greater number are established in the various colonies of this republic.

Of North Americans there are very few, and their number is estimated at little over 700.

The British population in the Argentine Republic is calculated at 32,000, of which number 28,000 are Irish, forming about 5,000 families, and residing for the most part in the country, where they occupy themselves in rural pursuits and the tending of sheep.

The thriving condition of immigrants generally in the Argentine Republic cannot be more forcibly illustrated than by the following statement of the amount of deposits in the bank of Buenos Ayres.

For each 100 depositors—

12·70 are Basques.	12·80 are Spanish.
30·50 are Italians.	17·50 are Argentines.
4·10 are English and Irish.	9·60 various nationalities.
8·90 are French.	
3·90 are Germans.	100

The following is the proportion of the amount of sums deposited.

For each 100 millions of paper dollars—

9 belong to Basques.	10 belong to Spaniards.
20 " Italians.	27 " Argentines.
14 " English and Irish.	6 " various nationalities.
8 " French.	
6 " Germans.	100

It will be remarked that the sums deposited by the English and Irish are exceedingly high as compared with the limited number of depositors, a circumstance which can be accounted for by the fact of the vast wealth possessed by British citizens holding mercantile houses in Buenos Ayres.

##### 5. Railways.

The system of railways in the Argentine Republic may be said to be still in its infancy, and shows, unfortunately, but slow signs of progress.

The first line opened was in the year 1857 in the province of Buenos Ayres, for a short distance of seven miles; up to the year 1862 only twenty-four miles of railway were open to traffic, but since that period 300 more have been constructed, and it is expected that in the month of December of next year 124 miles more will be opened.

This satisfactory result is to be attributed mainly to the happy turn taken by political events in 1861, at which period the province of Buenos Ayres became reunited to the rest of the Argentine Confederation, and the present National Government was formed.

Nevertheless the construction of railways is very gradual, notwithstanding that the nature of the country is such as to call for very few costly engineering works, consisting, as it does, of an almost uniformly level plain, stretching in an uninterrupted line of 900 miles over a flat expanse of Pampa to the very foot of the Andes.

There are six lines of railway at present open to traffic, running over 326 miles; 118 miles are in course of construction, and four other lines of railway have been projected.

The subjoined is a list of the railways open to traffic.

Argentine Railways	No. of Miles open to Traffic	Owned by
Northern . . . . . (Buenos Ayres to Tigre)	18	English Joint Stock Company.
Western . . . . . (Buenos Ayres to Chivilcoy)	100	Provincial Government of Buenos Ayres.
Southern . . . . . (Buenos Ayres to Chascomus)	75	English Joint Stock Company.
Boca Railway . . . . . (Buenos Ayres to Boca and Barracas)	4	Private Company. English and American.
Central Argentine . . . . . (Rosario to Fraylo Muerto)	123	Argentine and English Joint Stock Company.
Entre Riano Railway . . . . . (Port Ruiz to Gualeguay)	6	Argentine Joint Stock Company.
Total . . . . .	326	

The average price of fares and freight per mile, on Argentine railways, is, for the first class, 3*d.*; second class, 1½*d.*; and freight, 4*d.* per ton. The average speed, sixteen miles an hour. Accidents are almost unknown.

The estimated cost of the construction of Argentine railways has been from 6,500*l.* to 10,000*l.* per mile, and the average general working expenses of them from 60 to 70 per cent. on the gross earnings.

The three lines of railway owned, exclusively, by English companies have received a government guarantee of 7 per cent.

On the Northern Railway 7 per cent. has been guaranteed on a sum of 150,000*l.*

On the Southern Railway 7 per cent. on a sum of 700,000*l.*

On the Central Argentine Railway 7 per cent. on a sum of 6,400*l.* per mile, with a large grant of land.

The guarantee on the Northern line, the first established, and calling for it, has, however, not been made effective owing to difficulties raised by the Government of Buenos Ayres respecting the accounts presented by the Company.

It is, indeed, to be hoped, that the Government of Buenos Ayres will not lose sight of the paramount importance of encouraging railway enterprises, and of removing all obstacles in the way of their being properly carried out; should it act in a contrary spirit, it cannot expect that foreign capital will be embarked in undertakings of such great utility to this country,

and indeed the actual lines of railway that have been guaranteed by law can only be considered in the light of experiments made, the question of any extension to them being mainly dependent on the manner in which the Government may meet the engagements which it has contracted in connection with them.

The works on the Central Argentine Railway were temporarily suspended in consequence of the provincial governments of Santa Fé and Cordova having failed to fulfil their obligations by ceding the land which they had bound themselves to give up. This difficulty, however, has happily met with an adjustment, and the works are being continued.

The only railway constructed in this country by the Government—namely, the Western line—is put up to sale for a sum of 700,000*l.*

There are four lines of railway in contemplation, but it is probable that many years will elapse before they are constructed.

The following is an enumeration of them:—

1. The Eastern Argentine Railway, in the provinces of Entre Ríos and Corrientes, to be constructed with a view to connecting the navigation of the lower with the upper part of the River Uruguay, which is effectually closed at Salto Grande to the passage of ships by some rapid falls. A concession for this railway, which is to extend over a distance of 200 miles, has been made to an English company, with a guarantee of 9 per cent. on 13,000*l.* per mile, but has not been proceeded with.

Should this line ever be completed, the vast riches of the southern provinces of the empire of the Brazils will find an outlet on the River Plate.

2. The Nogoya Railway is destined to connect the interior of the province of Entre Ríos with the bank of the River Parana. This railway was surveyed in 1864 by order of the government. Its length to be 64 miles, but no steps have been taken towards its construction.

3. The Lujan and Salto Railway in the Province of Buenos Ayres. This line would be a branch of the Western Railway, and when completed might lead to a further extension to Rosario, thus connecting that important river port with the capital of Buenos Ayres.

4. The railway from Frayle Muerto to Mendoza. This line will not be carried out until the Central Argentine Railway to Cordova is completed.

No line of railway in the whole of the Argentine Republic is likely to confer such benefits, both in a mercantile as well as in a political point of view, as the Central Argentine Railway. It will pass through the richest lands of this country, and by connecting the outlying interior provinces with that of Buenos Ayres, will conduce to give greater force to the general National Government whose present seat is in the capital of Buenos Ayres.

Moreover, an extension of the Central Argentine Railway would reach the Andine provinces, and be the means of developing the vast wealth of the mining districts.

This railway, too, may be destined at some future day to force a passage through the rugged walls of the Andes, and by descending to the plains of Chile link the waters of the Atlantic to those of the Pacific.

#### 6. *Mines.*

The mineral wealth of the Argentine Republic is very considerable, and gave rise to the appellation of 'La Plata,' or 'Silver,' bestowed on these regions by the early Spaniards.

The mines of the country, however, have been very imperfectly developed; they are situated principally in the Andine provinces, and bear partial and incomplete traces of having been worked during the period when the country was under the Spanish dominion.

The immense tracts of country, however, that must be traversed in order to reach the mining districts, and the great scarcity of labour to be met with in them, added to a deficiency of smelting establishments and the almost utter want of means of transport to the coast, combine to render the working of Argentine mines (for the present at least) an almost impracticable and certainly an unremunerative enterprise.

Only a few years ago 2,000 tons of ore, extracted in one district alone, and averaging upwards of 200 ounces of pure metal to the ton of ley, were thrown away from the impossibility of utilising it.

The mines in the province of La Rioja contain gold, silver, copper, iron, and nickel. They are considered amongst the richest in the republic, particularly those situated in the district of Famatina.

The mines in the province of San Juan contain gold, silver, and argentiferous lead. They are being worked, on a limited scale, by different English, German, and native companies. The average yield is calculated at 168 ounces to the Spanish ton of 2,000 lbs.

‘El Morado’ is the name given to a mine from which gold is extracted; yielding on an average 10 ounces of the precious metal to the Spanish ton.

Gold and silver are also met with in the district of Toutal, in which upwards of twenty-four mines have been opened. They possess a great advantage in the softness of the matrix, and the consequent facility with which a large quantity of ore may be extracted, and it is estimated that one English ton of ley would yield about 138 ounces of pure silver.

The province of Mendoza is rich in gold mines, and in that of Catamarca copper is largely extracted, and found to contain an admixture of the more precious metal.

The quantity of Catamarcan copper exported yearly from the port of Buenos Ayres shows a remarkable increase on the last few years over the earlier ones, as will be seen by a comparison of the amount of it exported during the last twelve years.

#### TOTAL EXPORT OF COPPER FROM PORT OF BUENOS AYRES.

Years	Copper in Bars	Years	Copper in Bars
1854	412	1860	92
1855	299	1861	3,317
1856	110	1862	6,091
1857	599	1863	5,484
1858	2,804	1864	8,774
1859	2,804	1865	10,936

The bars of copper exported average 200 lbs. in weight.

In the Province of Cordova about 200 silver mines have been opened, and twenty of them are actually being worked.

The largest produce obtained in any of them has been 300 marcs per caxon of about  $2\frac{1}{2}$  Spanish tons of ore, equal to

5,000 lbs. The average produce of that quantity of ore has been about 50 marcs.

It is estimated that the lowest produce, to make the working remunerative, would be from 8 to 12 marcs per 5,000 lbs. ; the expense of smelting that quantity would be from 90 to 100 Bolivian dollars, or from 14*l.* to 16*l.* sterling.

The average expense of extracting the silver by amalgamation, when the ore is suitable for that purpose, is about 60 Bolivian dollars, or 9*l.* 12*s.* per 5,000 lbs. In the smelting process the loss in the scoria is from 3 to 8 marcs per 5,000 lbs. In amalgamation the loss in the 'relavés' is about 3 marcs per 5,000 lbs. The loss of quicksilver in this process is about 4 ounces for each marc of silver obtained.

The greatest depth to which any mine has been worked has been about 300 feet.

At a depth varying from 25 to 50 yards many of the mines become flooded, and in summer, from the increased percolation, many cannot be worked at all, the pumping machinery being exceedingly imperfect.

As an indication of the estimated annual average produce of the mines that are being worked, it may be mentioned that last year two of them produced 5,663 marcs of silver of eight ounces each—viz., the mine of Santa Barbara 2,663, and that of El Ojo de Agua 3,000.

The ores are brought to the surface out of the mines in bags of raw hide on the shoulders of men called 'apires,' the shaft being an inclined plane with rude steps cut on it for that purpose.

The miner earns twelve Bolivian dollars, equal to 1*l.* 18*s.* 5*d.* monthly, besides his food. The carriers earn seven to eight Bolivian dollars, equal to 1*l.* 2*s.* 5*d.* and 1*l.* 5*s.* 7*d.*, also with their food, the daily cost of which for each man is about 1*£* 1*s.* 2*d.* Bolivian currency, or nearly 5*d.*

In the province of Jujuy, at a spot called Garrapatal, valuable petroleum beds are believed to exist at a depth of eighty feet from the surface of the ground, and to be capable of yielding 3*4* per cent. of pure petroleum.

The existence of this bituminous substance is stated to have been discovered many years ago by an explorer on the River

Verméjo, who made use of it for coating the bottom of his vessel.

In the Province of San Juan, at a place called Las Marayes, a coal bed exists extending over a circumference of nine miles, and averaging in depth that of an English coal mine.

The quality of it is considered to be superior to that found at Copiapó in Chile, and it has been calculated to contain, according to an analysis made of a specimen taken from the surface, the following proportions:—

Gases and volatile matter . . . . .	29·70
Water . . . . .	1·80
Coke . . . . .	43·10
Ashes . . . . .	25·40
	<hr/>
	100·00

This coal bed has not been worked as yet. In the same district as the one in which the coal has been found, sulphur has likewise been met with in great abundance.

To the many sources of mineral wealth existing in the Argentine Republic that have been already mentioned may be added valuable deposits of kaolin, of quartz, white sand, and other materials adapted for the manufacture of porcelain, glass, and hardware, together with marbles of various kinds.

LONDON

PRINTED BY SPOTTISWOODE AND CO.  
NEW-STREET-SQUARE



# MESSRS. LONGMANS AND CO.'S SERIES Of Encyclopædias and Dictionaries.

**A NEW DICTIONARY of GENERAL BIOGRAPHY;**  
containing Concise Memoirs and Notices of the most Eminent Persons of all Countries, from the Earliest Ages to the Present Time. With a Classified and Chronological Index of the Principal Names. Edited by WILLIAM L. R. CATES. In One Volume, medium 8vo. pp. 1,800, price 21s. cloth; or 26s. half-bound in Russia.

**M'CULLOCH'S GEOGRAPHICAL, STATISTICAL, and HISTORICAL DICTIONARY** of the various Countries, Places, and principal Natural Objects in the World. Revised throughout, with the Statistical Information brought up to the latest Returns, by FREDERICK MARTIN. With Coloured Maps. .... 4 vols. 8vo. 8s.

**KEITH JOHNSTON'S GENERAL DICTIONARY** of GEOGRAPHY: DESCRIPTIVE, PHYSICAL, STATISTICAL, and HISTORICAL. Forming a Complete Gazetteer of the World. New Edition, revised to July 1867. In One Volume, price 31s. 6d. cloth; or £1 16s. 6d. half-bound in Russia.

**URE'S DICTIONARY of ARTS, MANUFACTURES, and MINES;** containing a clear Exposition of their Principles and Practice. Sixth Edition, chiefly rewritten and greatly enlarged. Edited by ROBERT HUNT, F.R.S. Keeper of Mining Records. With about 2,600 Woodcuts. In Three Volumes, medium 8vo. price £4 14s. 6d. cloth; or £5 12s. half-bound in Russia.

**A DICTIONARY of SCIENCE, LITERATURE, and ART;** comprising the Definitions and Derivations of the Scientific Terms in general use, together with the History and Descriptions of the Scientific Principles of nearly every branch of Human Knowledge. Fourth Edition, reconstructed by the late Professor BRANDE, D.C.L. F.R.S. (the Author), and the Rev. G. W. COX, M.A. In Three Volumes, medium 8vo. price 63s. cloth; or 80s. half-bound in Russia.

**COPLAND'S DICTIONARY of PRACTICAL MEDICINE.** Abridged from the larger work by the Author, assisted by J. C. COPLAND, M.R.C.S. and throughout brought down to the present state of Medical Science. In One Volume, medium 8vo. pp. 1,560, price 36s. cloth.

**A DICTIONARY of CHEMISTRY and the ALLIED BRANCHES of OTHER SCIENCES.** By HENRY WATTS, B.A. F.R.S. F.C.S.; assisted by eminent Contributors. In Five Volumes. Vols. I. and III. 31s. 6d. each; Vol. II. price 26s. and Vol. IV. price 24s.—may now be had. [Vol. V. in progress.]

**GWILT'S ENCYCLOPÆDIA of ARCHITECTURE.** Illustrated with more than 1,100 Woodcuts. A New Edition, revised and enlarged by WALTER PARWORTH, Fellow of the Royal Institute of British Architects. Additionally Illustrated with nearly 400 Woodcuts by O. Jewitt, and above 100 other Woodcuts. In One Volume, medium 8vo. price 52s. 6d. cloth; or 60s. half-bound in Russia.

## ONE-VOLUME ENCYCLOPÆDIAS, LATEST EDITIONS.

BLAINE'S ENCYCLOPÆDIA of RURAL SPORTS, with above 600 Woodcuts, price 42s.  
LOUDON'S ENCYCLOPÆDIA of AGRICULTURE, with 1,100 Woodcuts, price 31s. 6d.  
LOUDON'S ENCYCLOPÆDIA of GARDENING, with 1,000 Woodcuts, price 31s. 6d.  
LOUDON'S ENCYCLOPÆDIA of TREES and SHRUBS, with 2,000 Woodcuts, price 50s.  
LOUDON'S ENCYCLOPÆDIA of PLANTS, with above 12,000 Woodcuts, price 42s.  
LOUDON'S COTTAGE, FARM, and VILLA ARCHITECTURE, with 2,000 Woodcuts, 42s.  
CRESBY'S ENCYCLOPÆDIA of CIVIL ENGINEERING, with 3,000 Woodcuts, price 42s.

London: LONGMANS, GREEN, and CO. Paternoster Row.

